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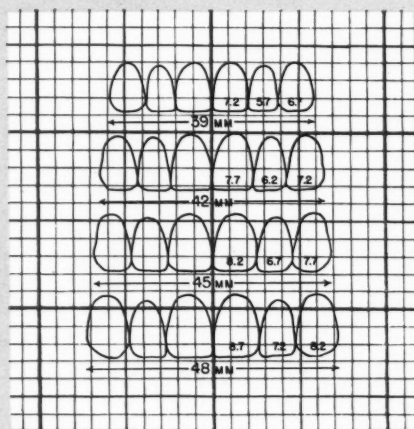
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UNIVERSAL DENTAL COMPANY

Manufacturers of the Most Complete Line of Porcelain Teeth

THE DENTAL Digest

VOL. 48

NO. 5

MAY, 1942

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About Our CONTRIBUTORS

WILLIAM E. WILSON, D.D.S. (St. Louis University School of Dentistry, 1919) is a general practitioner who as one of the pioneers in the field of plastics as applied to dentistry published the first report in the dental literature in this magazine in June, 1940. This was on the casting of plastic inlays and crowns. Subsequent reports here covered the casting of plastic bridge pontics and the casting of an upper anterior all-acrylic bridge.

IRVING LESTER COOK who has his D.D.S. from Marquette University School of Dentistry (class of 1923) is likewise a general practitioner. Doctor Cook describes for us a method of cavity preparation whereby the treatment of deciduous teeth is simplified.

CARL O. SCHRAMM, D.D.S. was graduated from Northwestern University Dental School in 1933 and has since been in general prac-

tice. Doctor Schramm offers a precision technique for casting acrylic inlays which embodies several innovations.

CLAUDE W. BIERMAN received his D.D.S. in 1919 from the University of Minnesota. He is the author of numerous professional magazine articles relating to dentistry for children.

SAMUEL BLAUSTEIN, D.D.S. (New York University College of Dentistry, 1930) practices general dentistry with an emphasis on oral surgery. He has written numerous articles, particularly with reference to diabetes

and dental surgery on which subject Doctor Blaustein has been engaged in research at the Kings County Hospital.

P. PHILIP GROSS, D.D.S. (University of Pennsylvania, 1922) has been a contributor to this magazine on other occasions, the last time in November, 1940 when he wrote on the TREATMENT OF POSTERIOR FRAGMENT IN AN EDENTULOUS FRACTURED MANDIBLE. This month he discusses the relation of facial forms to the osseous structures surrounding the teeth.

DAVID T. PARKINSON, D.D.S. is a graduate of Northwestern University Dental School, the class of 1902. He is in general practice and is a past president of the Kansas State Dental Association (1925). Doctor Parkinson was a dental member of the faculty of "The University Afloat."

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Internal Compression Injection of Acrylic for Full and Partial Dentures

W. E. WILSON, D.D.S., Springfield, Illinois

DIGEST

The old split flask molding method has been used with all the denture base materials that have been introduced to the profession from the standard rubber base through each of the new plastics. By using this method with the polymer-monomer methacrylate, it has presented new and uncontrollable problems, such as: volumetric shrinkage, porosity, checking of the posterior teeth, lack of adaptation to the mold, and disturbance of occlusion in the finished denture.

Recently a modification of the injection method of molding plastic materials has been presented to dentistry. This in reality is internal compression control of the acrylic when the "kick-over" from a homogeneous mass to a solid occurs. This method can be used with either the polymer-monomer mixture of acrylic or the co-polymer of the vinyl acrylic.



Fig. 1—Solid clear acrylic after bottle was broken off.

SHRINKAGE: When the liquid or monomer hardens into a solid mass it has 22 per cent shrinkage. An experiment was conducted in the following manner: A round bottle was selected and the liquid monomer was poured into it. The bottle was immersed in warm water until the liquid became a hardened mass of acrylic. The bottle was broken off and

showed a cupped shrinkage (Fig. 1). It is obvious that if a denture could be made from the straight liquid the shrinkage would be tremendous. A mixture combination of three parts powder to one part liquid would be considerably less. To prove this point two cone-shaped dies were made to precision. One was placed in the molding flask and the other was placed in the injection flask to compare the difference in volumetric weight by the two methods. The acrylic was mixed and each technique was followed with the same mix at the same time under the same heating process. Ten of these were made. The dies were shifted from the molding flask to the injection flask and back and forth to avoid any possible error in the dies. The average weight of the internal compression was 6 per cent greater than in the molding method. All the molded pieces showed porosity, whereas the injection pieces were solid (Fig. 2).

To prove the point further, a clear mixture of acrylic was molded. The top



Fig. 2—Dies used in making molded and injected pieces. Clear molded piece at left of picture shows porosity. Right solid piece after injection and processing.



Fig. 3—Clear piece was molded, black acrylic injected; then the whole processed.

Technique

1. The waxed case is invested in the bottom half of the flask (Fig. 6).
2. At the same time the plunger and the sleeve are placed to the full extent of the horizontal position according to the hole in the flask. Invest only the bottom half of the plunger's cylinder. Gauge the distance of the plunger and the waxed palate, so that the plunger will reach slightly over the palatal surface. This will permit the waxing of the plunger on the palatal surface, thus uniting the reservoir to the denture mold when the wax is eliminated.
3. Wax a sprue along the lingual up to the cuspid region on the upper, so that the mass will lead enough force to the greatest point of volumetric shrinkage, which is under the posterior teeth.

In this manner the thin palate and the greatest mass can be controlled as the plastic is shrinking.

4. Tin-foil the case with the plunger waxed to the end of the palate. Allow the tin foil to cover part of the plunger's collar, so that about one-fourth inch of the foil will extend under the sleeve. This will prevent trapping tin foil when the internal compression takes place.

5. Lock the top half of the flask into place with the pins and pour with investment.

6. Be sure the plunger casing is not dislodged when the second half of the flask is in place. Place the top cover over the invested upper half and lock in place with the pins.

7. When the investment is set, place the invested flask in warm water to

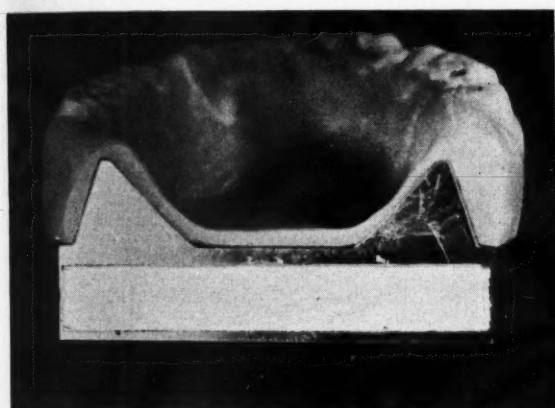


Fig. 4—The test denture on United States Bureau of Standards' die, made by internal compression.

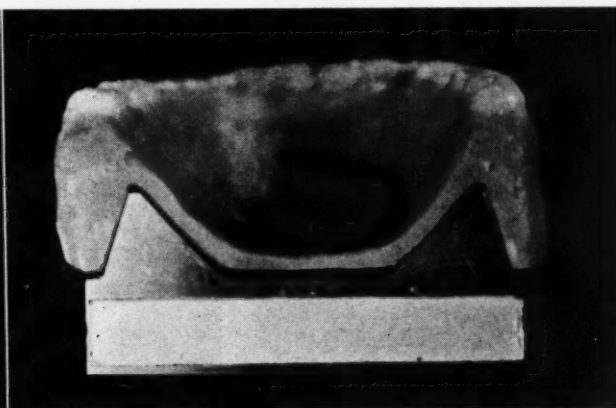


Fig. 5—Test denture on the United States Bureau of Standards' die, made by the split flask molded method.

half of the flask was then removed and a black mixture of acrylic was injected into the clear acrylic and processed. It was noted that considerably more black acrylic went into the clear (Fig. 3).

Two impressions of the stainless steel (United States Bureau of Standards) die were taken to compare the lineal shrinkage of each method. A set of teeth was waxed over each model, which is about the size of the average upper case. This gave considerable volume of acrylic around the ridge of the case. Each of these was poured, one in the molding method flask, the other, in the injection method flask. They were tin-foiled by the same method used in making a denture. The mixture of acrylic was made up and each was packed with the same mix and processed under the same heat conditions (Figs. 4 and 5).

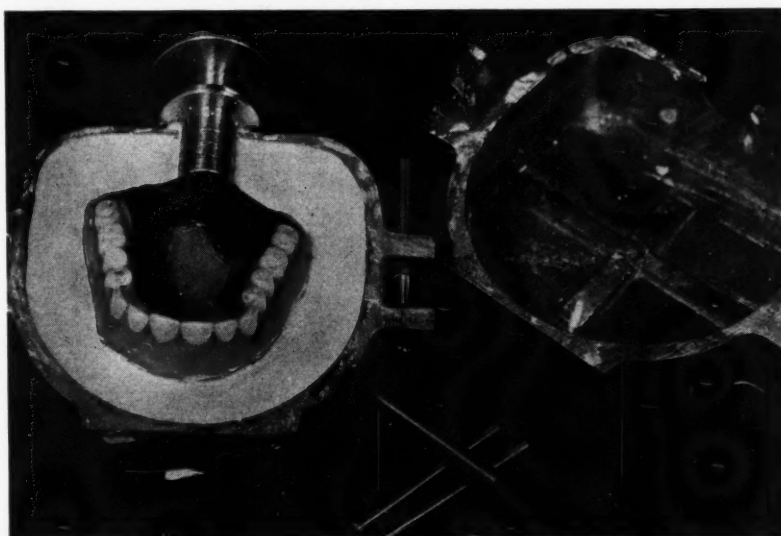


Fig. 6—Invested case in lower half of flask before tin-foiling preparatory to pouring upper half. (Note that the red wax shows sprue.)

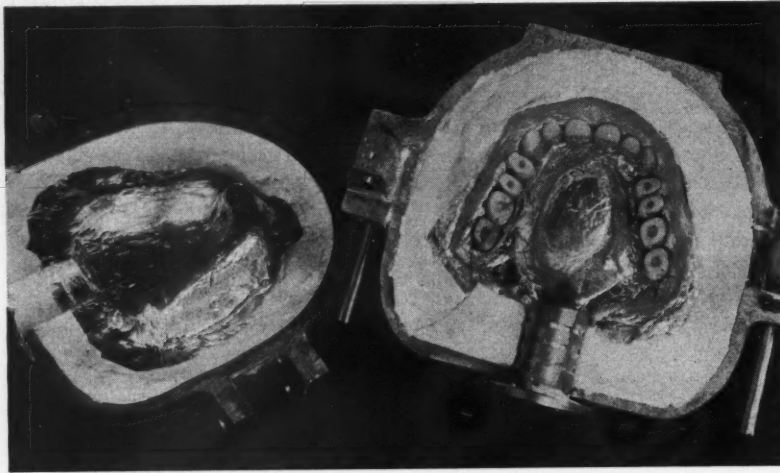


Fig. 7—Case after boiling out wax. Note plunger collar at posterior of flask.



Fig. 8—Acrylic mix prepared, ready to hand pack.



Fig. 10—Flask closed with lock pins, and the acrylic being placed in the cylinder.



Fig. 9—Opened case after first trial pack. Note that excess acrylic has been trimmed off, so that the flask will seal tightly.

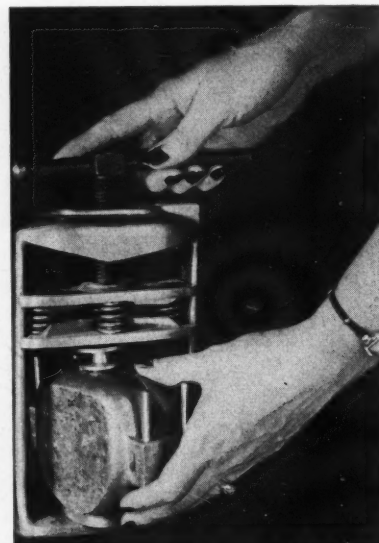


Fig. 11—Injector press with compensating springs forcing the cylinder plunger.

soften the wax and open the two halves of the flask.

8. Place the two halves in boiling water and boil out all the wax.

9. Clean the molds with acetone or chloroform to be certain that no residue of wax is left in them.

10. Tin foil the palatal half of the flask.

11. Packing: a) Mix the pink acrylic according to the technique and method recommended by the manufacturer of the material in use.

b) When the mass of acrylic is ready, pack into the flask by the same method used in the molding technique (Fig. 8).

c) Place a wet piece of cellophane over the acrylic and close the flask, pressing tightly in a hand press. Let the



Fig. 12—Press in room temperature water. Note water is not over the top of flask. Temperature control 158-170-190-220 degrees marked on front of oven.

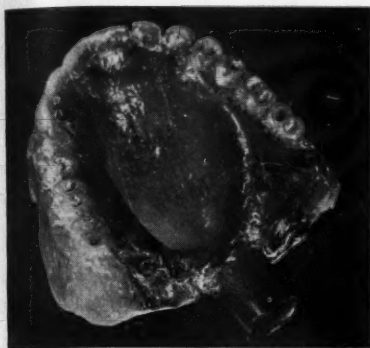


Fig. 13—Processed denture showing volume of black acrylic injected along posterior of base and teeth.

flask set in the hand press for a few minutes.

d) Open the case and trim off all the excess around the border as in Fig. 9.

e) For a clear palate, cut out the pink acrylic in the palatal area and place in the clear acrylic; then trial pack again. Be certain that there is no excess around the peripheral border, because the case must be sealed tightly to prevent a flash joint.

f) Close the flask with cellophane; press down in a hand press. Place the pin locks in the holes. Turn the flask up

on end with the plunger hole top up; insert acrylic mix in the hole (Fig. 10).

g) Place the plunger in the hole and press down with a special injector press (Fig. 11). If the plunger goes all the way down, remove it and place some more acrylic in the hole and repeat.

12. Processing: a) The compensating springs in this press are adjusted, so that they will not compress the material in the mold, because the acrylic, at its greatest fluidity point of 158° , is extremely soft and does not need a great deal of internal compressing before it becomes a solid mass.

b) Place the press in room temperature water immersing the flask to within one-half inch of the top; then turn on the heat which should be gradual, arriving at 158° in sixty minutes (Fig. 12).

c) At this time it is possible further to compress the plastic through the injector hole.

d) Heat gradually up to about 175° for the next hour.

e) Boil for one-half hour.

f) Remove the press and let it cool to room temperature.

g) After cooling, remove the case



Fig. 14—Lower, showing proper place for sprue before flasking.

from the flask and finish according to the recognized principles (Fig. 13).

13. Investment of the Lower and Partials: The lower case is invested according to the same principle—placing the sprue on the lingual, leading up to approximately the cuspid area (Fig. 14). It will be noted in the design of this flask that the plunger is placed in the lingual of the flask and the forces are always parallel. This is important in this design, because no overforce is necessary. The possibility of internal strain is thus eliminated.

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Announcement of Books Received

CLINICAL DENTAL ROENTGENOLOGY: Technic and Interpretation, Including Roentgen Studies of the Child and Young Adult (1046 Illustrations), By John Oppie McCall and Samuel Stanley Wald, Philadelphia and London, W. B. Saunders Company, 1940.

OPERATIVE ORAL SURGERY (1019 Illustrations), By Leo Winter, St. Louis, The C. V. Mosby Company, 1941.

MODERN METHODS OF TOOTH REPLACEMENT (1881 Illustrations), By Jacob R. Schwartz, Brooklyn, Dental Items of Interest Publishing Company, Inc., 1942.

PHARMACOLOGY AND DENTAL THERAPEUTICS: A Textbook for Students and Practitioners, By Hermann Prinz and U. Garfield Rickert, Thoroughly Revised Eighth Edition by Edward C. Dobbs, St. Louis, The C. V. Mosby Company, 1941.

DENTAL EDUCATION IN THE UNITED STATES, By John T. O'Rourke and LeRoy M. S. Miner, Philadelphia and London, W. B. Saunders Company, 1941.

BASIC PRINCIPLES IN DENTISTRY, By Victor H. Sears, New York, Chicago, Pitman Publishing Corporation, 1942.

PHYSICAL PROPERTIES OF DENTAL MATERIALS, By Wilmer Souder and George C. Paffenbarger, National Bureau of Standards, U. S. Government Printing Office, Washington, 1942. (For sale by the Superintendent of Documents, Washington, D. C. Price: 75 cents.)

COMMUNICABLE DISEASE NURSING, By Theresa I. Lynch, R.N., Ed.D., St. Louis, The C. V. Mosby Company, 1942.

W. K. KELLOGG FOUNDATION: The First Eleven Years, 1930-1941, By The Trustees of the W. K. Kellogg Foundation, Battle Creek, Michigan, Printed in Chicago by The Lakeside Press, 1942.

Care of Deciduous Teeth

I. L. COOK, D.D.S., Gillett, Wisconsin

IT IS MY CONTENTION that if orthodontists can place bands on permanent teeth and leave them for a number of years for the purpose of correcting dental conditions, without any deleterious effect on the teeth that are banded or the investing tissues, there is no reason why bands cannot be used on deciduous teeth as a restorative and preventive means of caring for them.

When children appear in the dentist's office with proximal cavities in the deciduous teeth, the dentist is confronted with the problem of preparing these cavities according to Black's technique for cavity preparation or that of other authorities.

Most children have gone through the experience of receiving inoculations by the school nurse or the family physician; thus there has been built up in their minds a fear of the needle that the dentist would like to use in nerve blocking. Most dentists find it necessary to use infiltration or conduction anesthesia to prepare cavities in deciduous teeth properly and without hurting the child. Conduction anesthesia or the preparation of cavities without anesthesia are the alternatives.

The occlusal step is the painful one in cavity preparation. By using bands this step is eliminated along with the necessity for anesthesia, because most

DIGEST

A technique is suggested for the preparation of cavities in deciduous teeth whereby the painful occlusal step is overcome by adapting a chrome alloy band to the tooth exactly as a band is adapted in orthodontia.

This protective band, cemented to place, is allowed to remain as a fixed restoration until the tooth is lost by normal process.

proximal cavities can be cleaned with a spoon excavator or a round bur, with little or no pain to the patient.

Technique

1. The chrome alloy band material, .004 in thickness, is adapted to the tooth by means of the Wagner matrix retainer.
2. The band is festooned and adapted to the gingival gum margin.
3. After the band has been properly adapted to the gum margin, an instru-

ment is used to mark the inside of the band in such a manner that the band can be slipped from the tooth, cut along these markings for the purpose of bending the band over the mesial and distal marginal ridge and into the occlusal sulci for retention as well as for covering any destruction of enamel from proximal decay. In other words, the band is adapted to the deciduous tooth exactly as one adapts a band to any tooth, as in orthodontia. Fitting the bands on the deciduous teeth and turning the bands down over the marginal ridge cause contact with the adjoining tooth.

4. These chrome alloy bands are spot-welded together.

5. When completed, the band is cemented to the tooth, the cavity being filled with cement.

The band remains on the tooth as a fixed restoration until the tooth is lost by normal process.

Advantages

1. Fear is not built up in the mind of the child patient in having dentistry done. He experiences no pain on the removal of caries as no hard tooth structure is removed.
2. The band protects all surfaces of the tooth regardless of whether the tooth is carious on one or more surfaces.

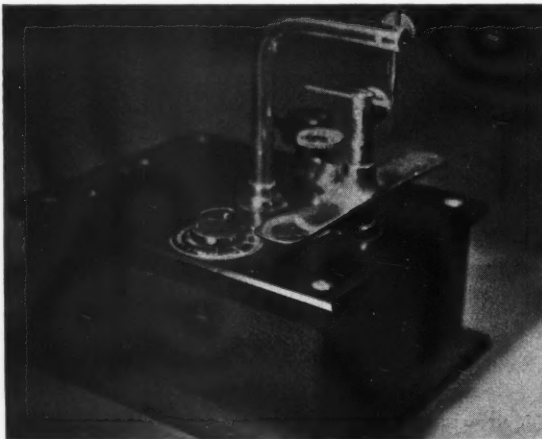


Fig. 1—Spot welder.

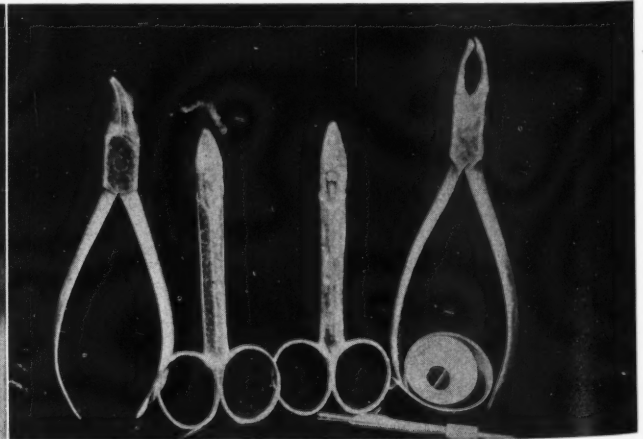


Fig. 2—Equipment and material needed for contouring bands.



Fig. 3—Deciduous teeth showing proximal cavities with no occlusal step preparation.

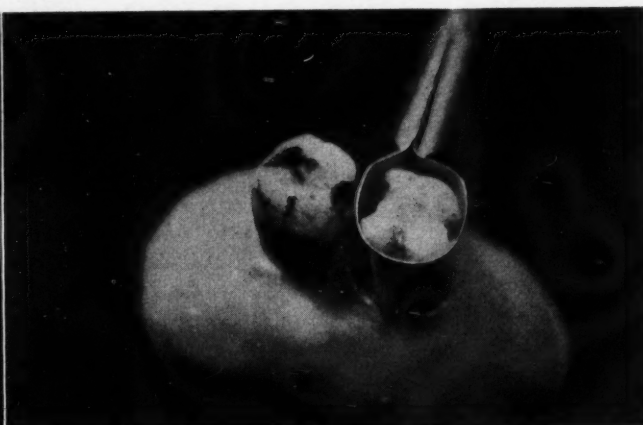


Fig. 4—Band adaptation to deciduous molar.



Fig. 5—Slitting of band preparatory to adaptation over marginal ridges.

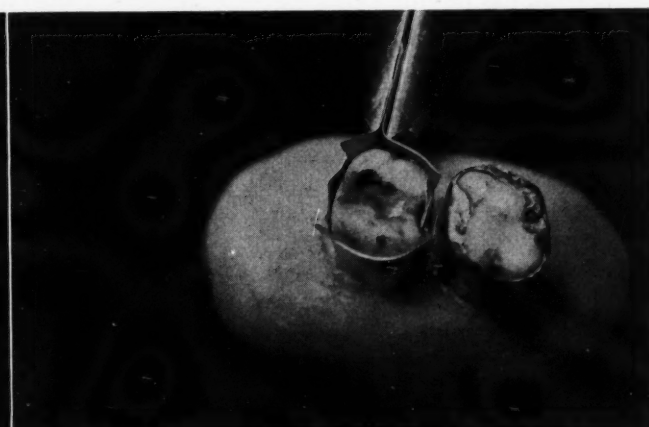


Fig. 6—One band completed and in place; second band prepared for adaptation. Note open contact.

3. The pulp is protected against thermal shock which is often experienced when metal restorations are used.

4. The time spent at the chair is considerably less for the child as well as for the operator.

5. The chrome alloy, being of a high finish on the outside, will cause no undue irritation to adjoining teeth or investing tissues.

6. In the event that a band comes off, it is replaced more readily than a broken amalgam can be replaced.

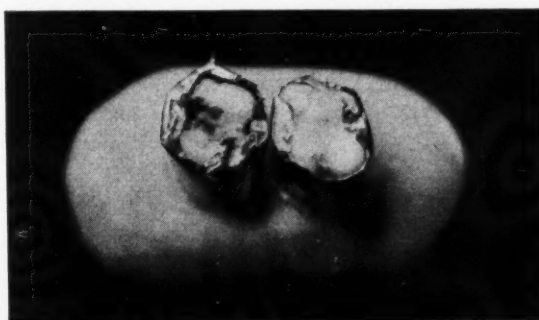


Fig. 7—Second band placed in the rough. Note restoration of contact point as adaptation over marginal ridge of second band causes bulging in the interproximal space. This automatically makes contact.

Unsolicited Manuscripts Are Welcome

"When you have made an observation of value or reached a conclusion concerning the unusual, publish it. Avoid carrying unpublished knowledge to the grave!"—Sir William Osler.

Precision Casting of Acrylic Inlays

CARL O. SCHRAMM, D.D.S., Chicago

DIGEST

A precision technique for casting acrylic inlays is illustrated. The salient features of the technique include (1) a solid flask rather than a split flask; (2) the use of zinc phosphate cement and silicate cement rather than the ordinary type of investment; (3) a mold chuck (a device on which the inlay pattern is fixed and held in position), which is adapted to the flask.

The advantages of the solid flask are given. The rationale for the use of cement is explained. The mechanical details of the mold chuck device are described and illustrated diagrammatically.

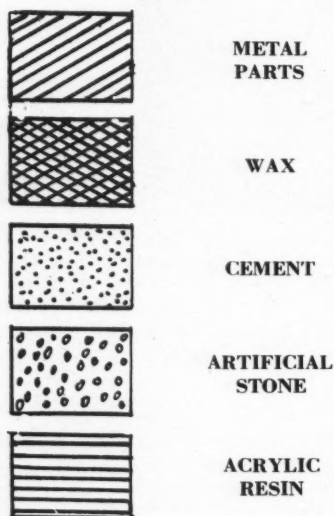


Fig. 1—Key to diagrammatic representation.

NOW THAT A plastic material is available which can be made to resemble teeth in its appearance, many uses have been found for it in dental restorations. I believe that with careful and common sense application, it will find a definite place in dentistry. It is easy to become unduly enthusiastic over a material of this kind; we must, therefore, be cautious in our judgment. I have confined my employment of acrylic resin to those uses where otherwise silicate porcelain would be required.

The preparation for these cavities was carried out the same as if I were going to use a cast gold inlay (Figs. 2 and 3). With the elimination of the separating medium, it is possible to cast the margins on the inlay accurately, so that in the cavity preparation the use of the beveled cavo-surface angle may be continued.

Rationale for Use of Cement—I felt convinced that the use of a separating medium altered the finished plastic inlay; therefore, I tried to find an investment with which it was not necessary to use a separating medium. I found that silicate cement gave the smoothest surface against which to cure the acrylic. Because the straight silicates became hard, they were difficult to remove from the finished inlay. The mixture of silicate with the zinc phosphate cement

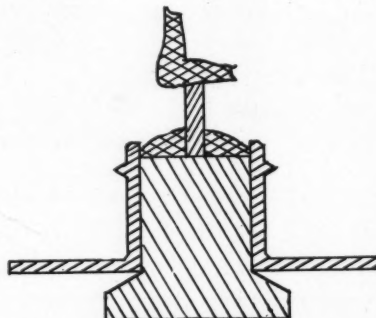


Fig. 2—Cross section of a mold chuck positioned on a plunger with pink wax filling space beyond end of plunger inside of mold chuck. A smooth wire sprue, of a size as large as pattern will permit to be used, is luted into wax pattern, the same as if it were made of gold. The other end of wire sprue is luted into the pink wax as deeply as possible.

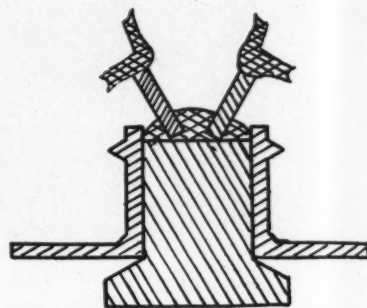


Fig. 3—Cross section, showing possibility of casting more than one inlay in one investment. If this is to be done, follow through the remaining steps as for a single inlay.

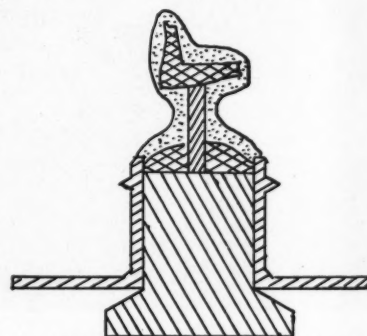


Fig. 4—First investment is of a silicate and zinc phosphate cement. This cement is preferred to straight silicate because it is easier to remove from the finished inlay, and it is better than straight zinc phosphate cement because it is less porous. The cement is mixed to a fairly thin consistency and is adapted over the wax pattern, the wire sprue and the pink wax in the mold chuck. This is most easily accomplished with an instrument similar to a beaver tail burnisher. Let cement set before continuing.

gave a smooth surface, and it was found to separate more easily from the plastic inlay. This kind of investment did not require the use of a die on which to make the wax pattern and made it simpler for those who prefer to make the wax pattern directly in the cavity.

The Solid Flask—To invest these direct wax patterns (especially if they were extremely small) in the split flask was difficult to do, so that the margins would be protected and enough of the pattern would be left exposed to facilitate the packing of the acrylic. Some sort of injection molding seemed the answer

to the problem, but I felt this should be accomplished without permitting the plastic to come in contact with the plaster at any time during the injection. It also seemed that the plastic was condensed better with the injection method. A one-piece flask with a tapered interior to facilitate the removal of the investment was finally employed.

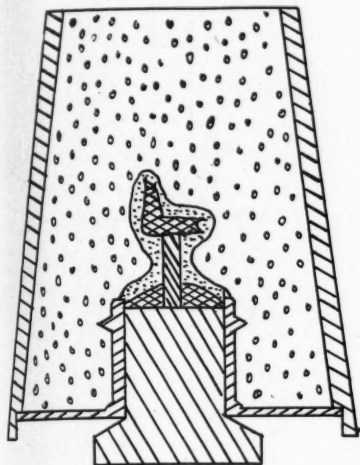


Fig. 5—Flask is positioned on the mold chuck which, in turn, is supported by the plunger. This will hold the flask away from the laboratory bench and permit the mold chuck to be seated against the shoulder provided for it inside the flask. A creamy mix of artificial stone is prepared and is vibrated into flask to fill it completely; let it harden.

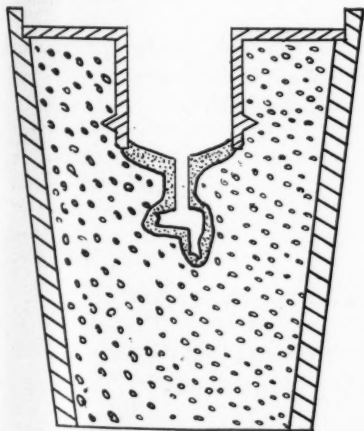


Fig. 6—Having removed the plunger, the flask and the investment can be placed in boiling water to remove the pink wax which will expose the end of the wire sprue, so that it can be pulled out with long-nosed pliers. The boiling is continued for 15 minutes to eliminate all the wax from the mold. At this point it might be wise to caution against the use of dark blue wax for the wax pattern. It is better to use ivory-colored wax or any wax that will not discolor cement during its elimination.

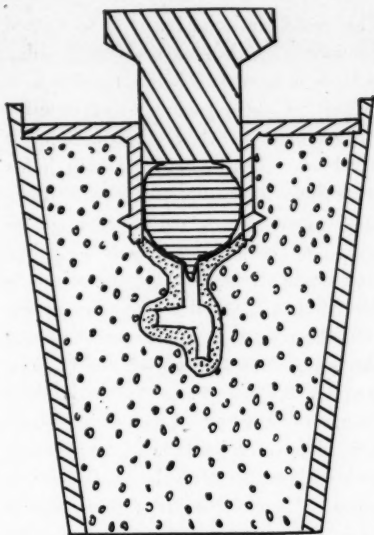


Fig. 7—Place the flask and investment in cold water for five minutes during which time the powdered acrylic is mixed to the desired shade and the monomer is added. This may be kneaded occasionally until it attains a thick, doughy consistency; that is, until it has passed the sticky stage. The acrylic is placed into the injection chamber and the plunger positioned against it.

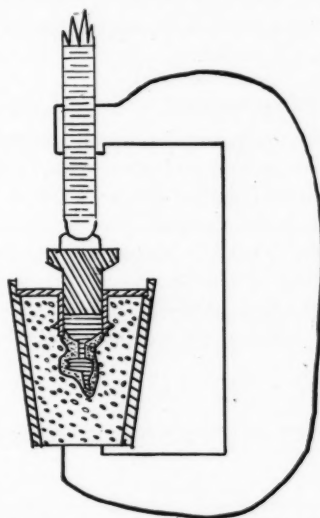


Fig. 8—With an ordinary C-clamp this plunger is forced against the acrylic to force the acrylic into the mold. Here the greatest caution should be observed, because in the drawing it will be noticed that all the force exerted against the plunger is transferred directly to the plastic, developing a hydraulic pressure within the mold; thus with even a little pressure, more condensation of the acrylic is had than could possibly be obtained with the known techniques with terrific forces in a split flask. The plastic will flow easily through the sprue hole into the mold, but it must be given time to accomplish this. The initial force exerted by the clamp is enough to seat the plunger against the acrylic. During the next five minutes the clamp is turned down at frequent intervals to condense the acrylic completely. At this point the cast-

ing is complete and the acrylic must be held in this form to cure it. It has been found to be desirable to start the curing in hot tap water of approximately 120° F. and take 40 minutes to bring the water to about 170° F., after which it should be boiled for 15 minutes.

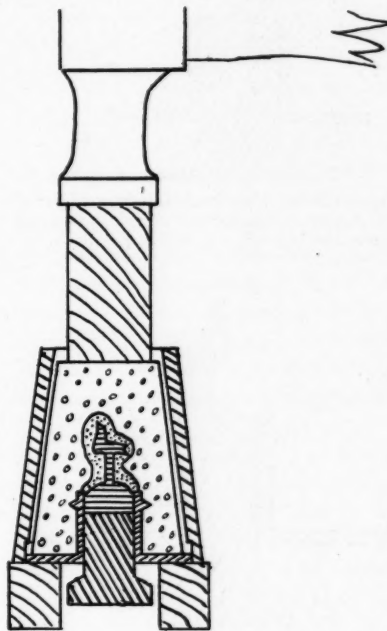


Fig. 9—Flask and investment are cooled slowly; to separate them, set up on a wooden block that has a hole in it to accommodate the end of the plunger. With another smaller wooden block positioned against the plaster on the open end of the flask, the investment with the mold chuck can be removed with a few sharp strokes of a hammer against this wooden block.

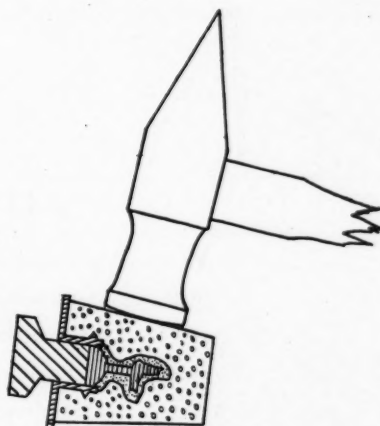


Fig. 10—To remove artificial stone, investment is placed sideways upon the laboratory bench or any desirable block and cracked away from the cement with a hammer. If this is done cautiously there is no danger of disturbing or breaking the acrylic inlay.

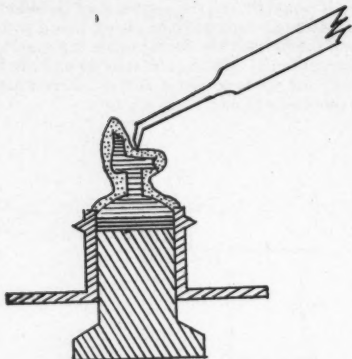


Fig. 11—With a sharp instrument it will be found a comparatively simple task to remove the cement from the acrylic inlay.

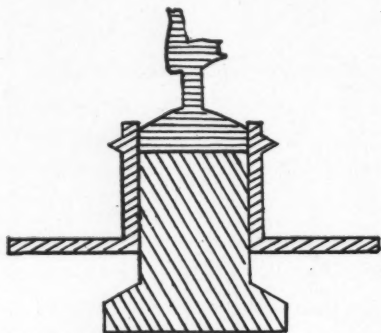


Fig. 12—It will be found that there is a clean and sharp casting without the flash that is experienced in the split flask technique. The acrylic inlay can be broken off at junction of sprue with excess acrylic to give a handle with which to handle the inlay. If necessary, it can be placed in a 50-50 solution of hydrochloric acid and water (preferably chemically pure, so that there is no likelihood of discoloring the acrylic) to remove any remaining cement.

Use of Mold Chuck—A mold chuck is adapted to the large end of the flask.

This mold chuck (Fig. 5) is so named because it is a device on which the inlay pattern is fixed and held in position. It might be compared to the crucible former used in gold restorations, but it carries a retention ridge which holds it securely in the investment and has a larger central hole drilled through all the way. This central hole is described as a reservoir from which the plastic is forced into the mold. The plunger fits into the reservoir and is used to force the plastic into the cement mold (Figs. 6 and 7). The force for this originates from an ordinary C-clamp which is sufficiently strong, because all the pressure exerted is confined to the acrylic and is not directly absorbed by the investment (Fig. 8). It is necessary to use the strongest artificial stone with this apparatus because of the hydraulic pressure set up inside of the flask (Figs. 9 and 10). This force, if sufficient, will cause the mold chuck to separate from the flask; therefore, it is necessary to use only moderate force to cast plastic inlays with this device. The casting is completed before the heat is applied to cure the acrylic.

Advantages

To repeat, the primary differences between this flask and others are: (1) that at no time during the execution of the procedure described is the acrylic permitted to come in contact with the plaster; (2) a definite pressure can be exerted on the acrylic to condense it; and (3) an accurately-cast inlay is obtained

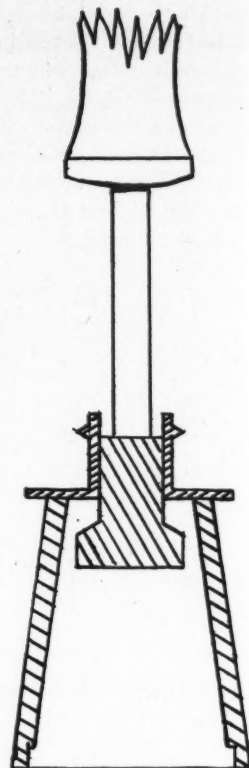


Fig. 13—To separate plunger from mold chuck, soften bulk acrylic in mold chuck with a gas flame. With a sharp instrument it can be removed so as to expose the end of the plunger. This can be positioned on the flask as is shown, and with a punch against the end of the plunger, it can be driven out of the mold chuck. It will be found that now any remaining acrylic can be easily removed or scraped off the plunger or mold chuck, leaving it perfectly clean for the next inlay.

which can easily be removed from and cleaned of its investment.

1791 Howard Street.

ATTENTION DENTAL WRITERS!

To stimulate dental writers during the war, THE DENTAL DIGEST is offering United States Defense Bonds to authors. Twice each year, in January and July, the best article published in the preceding six issues will be selected by vote of the readers of this magazine, and not by a board of editors or judges. The author of the article receiving the largest number of votes at the end of each six-month period will be awarded a \$100 UNITED STATES DEFENSE BOND. The first award will be made on July 15, 1942.

Illustrated articles of a practical, clinical nature, of the type usually seen in this magazine, are most likely to receive publication. The publication of material is as always at the sole discretion of the editor.

A Simple Matrix for Use in Deciduous and Permanent Molars

CLAUDE W. BIERMAN, D.D.S., Minneapolis

DIGEST

A technique is presented for making a simple, time-saving alloy matrix for use in both deciduous and permanent molars. The matrix is left on the tooth for twelve hours after placement to insure proper setting of the restoration.

I BELIEVE THAT many failures in the use of alloy, especially in deciduous molars, have resulted from employing the wrong type of matrix and removing it too soon. The finished restoration should not be disturbed until it has passed the setting stage. If the matrix is removed too soon the alloy might break or crumble from mastication and the restoration will be ruined. A solution is offered in a matrix made for each individual tooth which is left on the tooth for about twelve hours.

The technique is simple and requires only a few minutes' time at the chair. If properly executed, time is saved in the finishing of the restoration because all the margins will be perfect.

Technique

1. A thin gauge of brass shim is used—.003 gauge. This may be purchased in a sheet of any size. Cut the sheet in 6 inch lengths, three-sixteenth inch widths for the deciduous teeth and one-fourth inch widths for the permanent teeth. This cutting facilitates the handling of the material. Each strip is annealed before it is used.

2. A U-shape is made by bending one strip around the first finger of the left hand. With a pair of band-forming pliers, turn the short end to form a right angle. This will form a little wing for

the band-forming pliers to grab onto when pinching the band around the tooth (Fig. 1).

3. Place the U-shaped strip around the tooth to be restored; grasp both loose ends, and pinch the band on the tooth.

4. Remove and cut the ends; then solder with soft silver solder (Figs. 2 and 3).

5. Cut the soldered ends and smooth with a stone. Be sure that the seam will be away from the cavity margin. Always have the seam on the buccal. Care must be exercised so that the band will be seated at the gingival on both the mesial and distal surfaces of the tooth; if not, the band will hunch up and imperfect margins will result. Do not allow the band to impinge upon the tissue, however, to cause tissue blanching. Festoon at the gingival if necessary. This band should now fit the tooth tightly.

6. Cut the top of the band flush with the marginal ridge at the cavity portion

of the tooth. This will give the desired height of the restoration.

7. Place a toothpick wedge at the gingival of the cavity to prevent any distortion of the matrix when packing the cavity.

8. Condensation of the alloy in packing must be carefully done. Small instruments should be used in the beginning of this operation and then larger pluggers to finish the packing. Overpack, then start any carving necessary.

9. Have the child close for occlusion inspection. Dismiss the patient from the chair, with the instruction to the child or mother to remove the band in twelve hours. This is done by placing a fingernail under the gingival of the band, both buccally and lingually, then raising the band off the tooth.

10. At a subsequent appointment the restoration should be polished.

301 Kenwood Parkway.

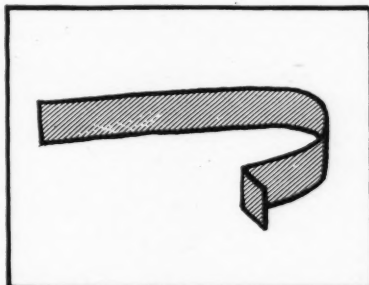


Fig. 1—Piece of metal band.

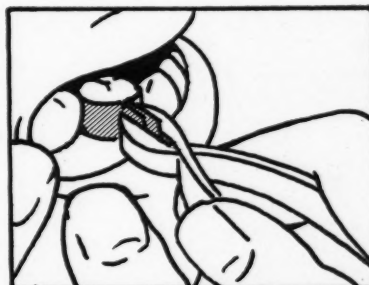


Fig. 2—Band formed, with the long ends cut off.

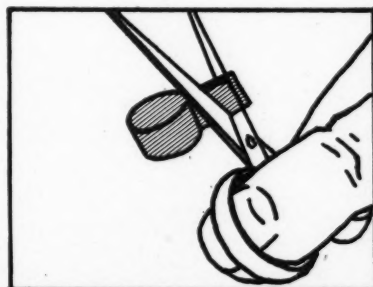


Fig. 3—Band held with a pair of soldering tweezers, preparatory to soldering with soft silver solder.

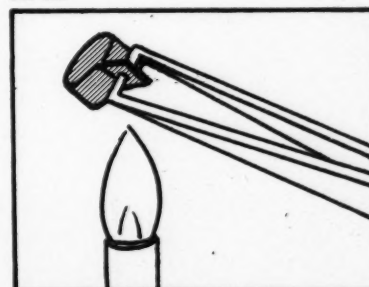


Fig. 4—Band being soldered.

Displacements and Fixation of Mandibular Fractures

SAMUEL BLAUSTEIN, D.D.S., Brooklyn

BEFORE UNDERTAKING the treatment of a fractured mandible, it is important to secure as much of the case history as possible. At least two sets of roentgenograms should be taken. Digital examination should be as thorough as the case will permit. The sooner a fracture is reduced and fixated after the injury, the greater the chances are for uneventful recovery.

Treatment of Teeth in Line of Fracture

Teeth in the line of fracture must be given special consideration. When the tooth is anterior to the last molar in position, it is usually extracted. If, on the other hand, it is a last molar, it may be advisable to retain this tooth temporarily to prevent riding of the distal segment (Fig. 1).

Use of Intermaxillary Wiring: Complete Dentition

In a complete dentition, a single fracture in the mental or molar region presents a typical but not too great displace-

DIGEST

Displacements of mandibular fractures are discussed with reference to muscular involvements and the condition of the dentition: edentulous, poor complement or opposition of teeth, and with regard to teeth in the line of fracture.

The indications for the types of fixation required are considered; that is, the use of intermaxillary wiring; splints or labial arch wires; slow reduction; and circumferential wiring.

Feeding of the patient is likewise considered.

ment (Fig. 2). The posterior fragment is often held up and in occlusion by the elevator muscles, whereas the anterior fragment may be pulled downward by the depressor muscles. Reduction is simple and intermaxillary wiring is effective (Fig. 3). At least three sets of wire loops are used on both upper and lower jaws. This provides eyelets through which short strands of wire are passed. After the jaws are closed, the wires are tightened, thus immobilizing the parts.

Use of Splints or Labial Arch Wires: Incomplete Dentition

When the dentition is incomplete, fixation may be accomplished by means of splints or labial arch wires.

Fracture in First Molar Region; No Opposing Teeth Present in Upper Jaw—The elevator action of the masseter, temporal and internal pterygoid muscles will pull the posterior segment upward or upward and inward. To reduce and fix this type of fracture, an occlusal opposing block or denture must be con-



Fig. 1—Molar in line of angle fracture.



Fig. 2—Fracture in the mental region.



Fig. 3—Intermaxillary wires in position.



Fig. 4—Acrylic sectional splint for fractured mandible.

constructed for the edentulous upper area; or, a splint may be made for the lower (Fig. 4).

Labial Arch Wires: Incomplete Dentition with Poor Complement of Teeth for Loop Wiring—Relatively easy to construct, a half round nickel silver wire, 2 mm. wide, is bent to the shape of the arch to form the labial arch wire. If there is not a full complement of teeth on the upper jaw, an arch is

adapted as well (Fig. 5). It is important to bend the ends of the arch wires from 3 mm. to 5 mm. around the distal of the last tooth in position on each side. This will prevent impingement upon the cheek.

If trauma occurs at the symphysis, a fracture may result in the midline. If no bone substance is lost, there may be a slight displacement and fixation is no problem. If, on the other hand, there

does occur loss of bone, considerable displacement follows.

Slow Reduction: Muscle Pull at Anterior of Jaw

The muscles are of the depressor group. They consist of the mylohyoid, geniohyoid, genioglossus, digastric, and platysma muscles. Inasmuch as they are on both sides of the midline, action is symmetrical. When there is a loss of

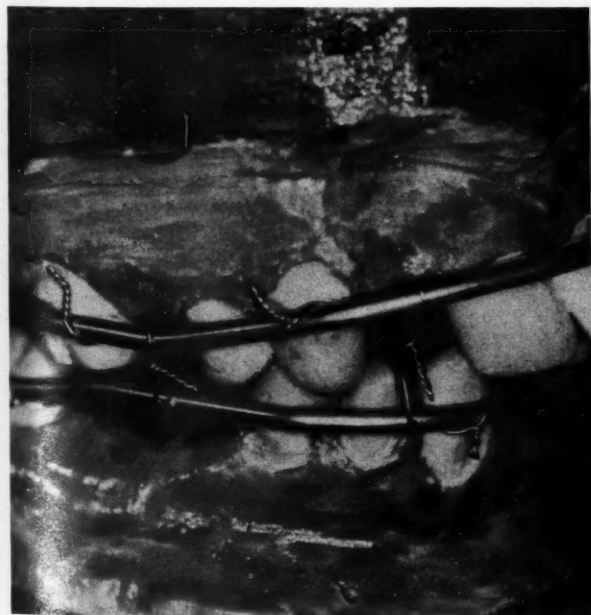


Fig. 5—Labial arch wires ligated to teeth and intermaxillary wires looped over arches.

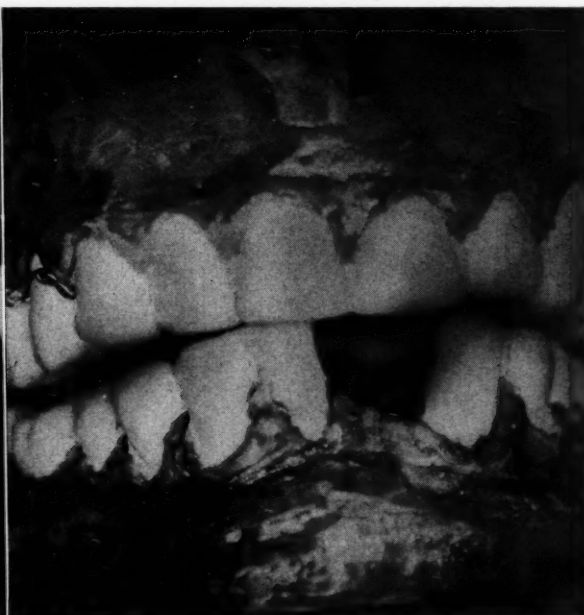


Fig. 6—Symphysis fracture with anterior collapse.



Fig. 7—Traction bars in position for reduction.

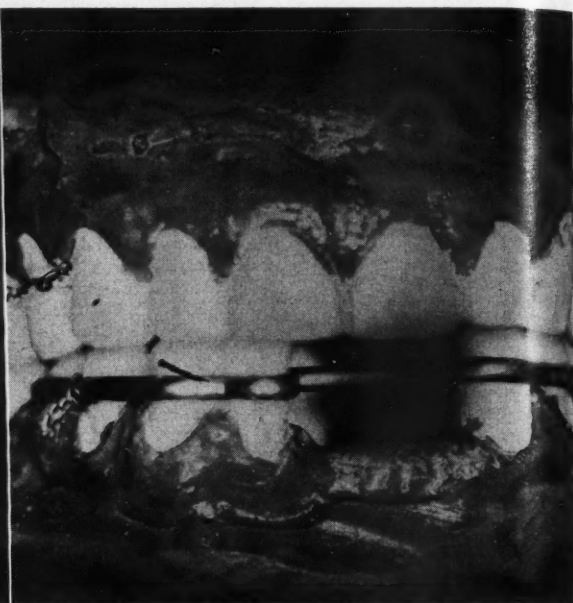


Fig. 8—Rigid splint ligated after reduction.

bone at the symphysis, therefore, the pull will be downward and toward the midline. The result is a closing of the arch as well as an outward tilt of the occlusal surfaces of the lower posteriors (Fig. 6).

To overcome the deformity, slow reduction is often required.

1. Any appliance may be utilized which will create force antagonistic to the inward muscle pull. Splints may be

constructed bearing long traction arms or labial arch wires adapted to each segment and ligated to the teeth.

2. Arches are so constructed that the free ends overlap each other and are bent in hook form at their terminal points.

3. Elastic traction can be obtained by using orthodontic rubber bands sprung over the open hooks (Fig. 7).

4. In conjunction with these traction

bars, intermaxillary wires can be used advantageously to hold the fragment as reduction is being accomplished.

5. When reduction is complete, the construction of a simple rigid wire splint will fix the fragments until healing is complete. Such a splint can be ligated into position (Fig. 8).

Fracture at Angle of Mandible

One type of fracture met with fre-



Fig. 9—Fracture in angle reduced with a block.



Fig. 10—Posterior fracture with segment riding upward.



Fig. 11—Ramus wired for external reduction.



Fig. 12—Circumferential wiring of splint.

quently is that occurring at the angle of the mandible. Here the pull of the elevator muscles causes the ramus to ride upward and inward. Sometimes an acrylic block may be used to depress the posterior segment (Fig. 9). This block is interposed between the upper molars and the lower angle.

A lower splint with a metal extension is another appliance for such reduction. The metal extends distally, and penetrating the soft tissues, engages the bone and depresses the posterior segment. The displacement at the angle is sometimes so intractable that hospitalization and external reduction become necessary (Figs. 10 and 11).

This form of reduction may result in an osteomyelitis, and must be checked more regularly than other forms of fractures.

Circumferential Wiring

In those cases in which the maxilla is edentulous but the mandible has several teeth in position, a fracture of the lower jaw will require fixation that is not intermaxillary. When the complement of teeth is poor, fixation can be accomplished by circumferential wiring. Circumferential wiring has a definite place in the treatment of a fractured edentulous mandible with the line of fracture anterior to the angle (Fig. 12). Here again, the lower denture, if available (Fig. 13), may be used as a splint by



Fig. 13—Denture used as splint for circumferential wiring.

passing wires through small holes drilled through the interproximal spaces of the denture. With a fracture posterior to the angle, the upper and lower dentures, wired together, will provide a serviceable splint.

Whether splints, intermaxillary wires, or arches are used, the soft tissues as well as the osseous structures must be under constant observation. A complication already mentioned is osteomyelitis. When the condition has been diagnosed, incision and drainage are indi-

cated. With the advent of chemotherapy, the oral surgeon has found a valuable aid in his treatment of the bone as well as any soft tissue involvements.

Feeding the Patient

Another factor to be mentioned before conclusion is that of feeding the patient. A high caloric and multiple vitamin diet should be prescribed. Plenty of nutritious fluids will help the course of treatment.

2102 Seventy-Third Street.

The Relation of Facial Forms to the Osseous Structures Surrounding the Teeth

P. PHILIP GROSS, D.D.S., Philadelphia

DIGEST

The relation of facial forms to the osseous structures surrounding the teeth is viewed as the basis by which to anticipate operative problems in the removal of teeth.

FOR CENTURIES artists have classified the human face into three typical forms: the square, the round, and the tapering. Diagrammatic illustrations of these three types as drawn more than 150 years ago, are contained in George H. Wilson's book on DENTAL PROSTHESIS. In 1911, James Leon Williams propounded the theory that these three typical face forms were common to all races, and that other face forms were the result of combinations of the basic elements of the three typical face forms. He was the first to note that the face forms and the tooth forms are similar and harmonious: that a square face will contain square-shaped teeth, and that a long narrow face will have long narrow teeth. All prosthodontists now recognize these fundamental principles and seek to provide the different facial types with corresponding suitable tooth forms. It was Cogswell, in 1932, in his book on DENTAL ORAL SURGERY, who first gave lengthy emphasis to the study of facial forms in connection with the varying underlying anatomic conditions which might be expected to be found in the course of tooth extraction.

A close analysis will show a marked difference in the operative removal of teeth in the different facial types. The difficulties do not lie in the size of the tooth to be removed, or in the size of the patient, but in the anatomic variations of the investing osseous structure

of the teeth, and this osseous investment of the tooth bears a direct relation to the types of faces under consideration.

A tooth is surrounded on four sides by osseous tissue; for example, an upper bicuspid has surrounding tissue on the mesial, the distal, the buccal, and the palatal surfaces. By means of the roentgenogram the amount of osseous structure on the mesial and distal surfaces of the tooth can readily be determined. In order to determine the amount of osseous structure on the other two surfaces, however, the buccal and the palatal, it is necessary to estimate the thickness and density by not-

ing the facial type that the particular patient presents.

Classifications

In dental surgery as well as in prosthesis, therefore, the basal typical forms to be considered are the square, the ovoid, and the tapering faces (Figs. 1, 2, 3). Each of the basic types is further subdivided into a long and a compact variation; for example, the typical square

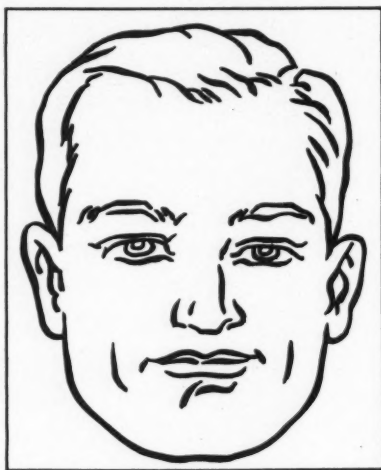


Fig. 1—Typal square face.



Fig. 2—Typal ovoid face.



Fig. 3—Typal tapering face.



Fig. 4—Long square type (a variation from the basic square type).



Fig. 5—Compact square type (another variation from the basic square type).



Fig. 6—Ovoid face, showing low malar bone formation. This low malar bone formation is characteristic of all square and ovoid types.

face manifests a long square and a compact variation from the basic standard (Figs. 4 and 5). In like manner are described the long ovoid and the compact ovoid, the long tapering and the compact tapering face. The face forms are now to be considered from an operative standpoint.

Characteristics of Square and Ovoid Facial Structures

From the dental standpoint, the osseous anatomy of the two basic types of faces, the square and the ovoid, are similar (Fig. 6). They may be studied as one group. The common features of the typical square and the typical ovoid faces are (1) a compactness of the features; (2) low malar bone formation; (3) short upper lip; (4) square chin, and (5) short tooth forms.

Coronal Section—On coronal section are shown the low palatal arch and the low and heavy dental ridges completely surrounding the teeth (Fig. 7). A further study of the individual tooth from the coronal aspect shows the low palate formation, the mucofold attached low, and the thick surrounding osseous structure creating the heavy dental ridges (Fig. 8).

Operative Problem—Thick osseous tissue completely surrounding the tooth on all sides makes the operative removal in the square and the ovoid facial types often difficult. In removing teeth for patients having the typical square and the typical ovoid faces, the exertion of lateral pressure in the extracting movements before the tooth is entirely loosened in its socket results in a fracture of the tooth below the crest of the ridge (Fig. 9). The difficulty in the removal of the fractured root is

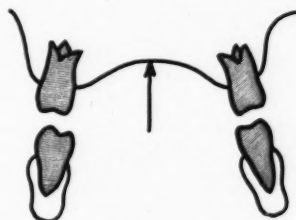


Fig. 7—Coronal section of square and ovoid faces.

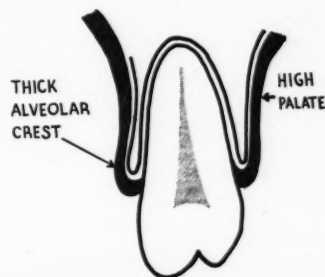


Fig. 8—Individual coronal section of tooth and surrounding osseous structures.

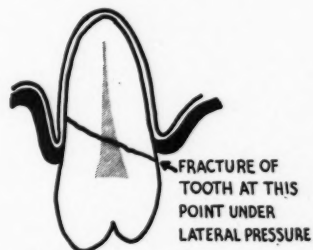


Fig. 9—Fracture of tooth under lateral pressure during extracting movements before tooth is entirely loosened in its socket.



Fig. 10—Tapering face, showing the high malar bone formation.

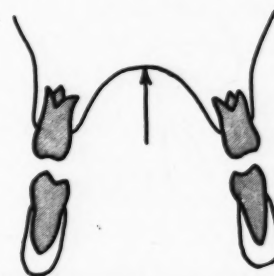


Fig. 11—Coronal section of tapering face.

further increased by the anatomic retention of the surrounding tissue.

Characteristics of Basic Tapering Facial Structure

The common features of the typical tapering face are (1) the tapering features; (2) high malar bone formation; (3) long upper lip; (4) pointed chin, and (5) long tooth forms (Fig. 10).

Coronal Section—On coronal section of the tapering face are shown the high palatal arch and the tapering dental ridges (Fig. 11). The ridge formations on the labial and the buccal surfaces of the tapering faces are found to be of two classes: The first is a thin buccal osseous structure throughout the entire length of the root (Fig. 12). In this class the form of the root can be felt under the mucous membrane and creates a prominence upon the ridge. The second class has a thickened crest at the gingiva which tapers and becomes thinner at the apex (Fig. 13).

Operative Problem—Fracture of this

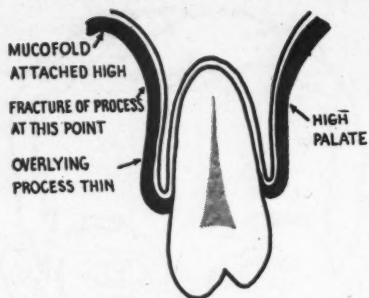


Fig. 12—Individual coronal section of class 1 ridge formation in tapering face.

thickened crest results in postoperative soreness. Because of the thin buccal osseous structure in the tapering faces, laceration of the mucosa results from attempts to remove these teeth when pressure is exerted laterally. In con-

trast with the difficulties met with in the dense and thick osseous investing structures of the jaws in the square and ovoid type of faces, the thinner bony structure of the tapering face offers fewer operative problems.

Operative Precautions—In removal of teeth therefore a study of the facial types in addition to the roentgenologic examination enables the operator to estimate the thickness of the bony structures with which he must contend. Age is also a factor to be considered in estimating the density of bone inasmuch as osseous tissue is known to become harder with the advancing years.

The exertion of lateral pressure in extracting movements should be avoided until the tooth is entirely loosened in its

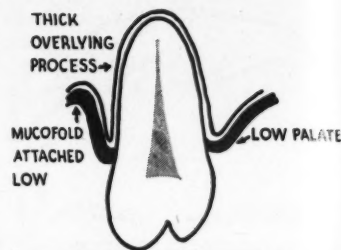


Fig. 13—Individual coronal section of class 2 ridge formation in tapering face.

socket. A knowledge of the thickness and the density of the investing osseous structure enables the operator to reduce trauma to the surrounding tissues in the removal of teeth, and thus, in turn, lessens the danger of postoperative complications.

6740 Torresdale Avenue.

Contra- Angles

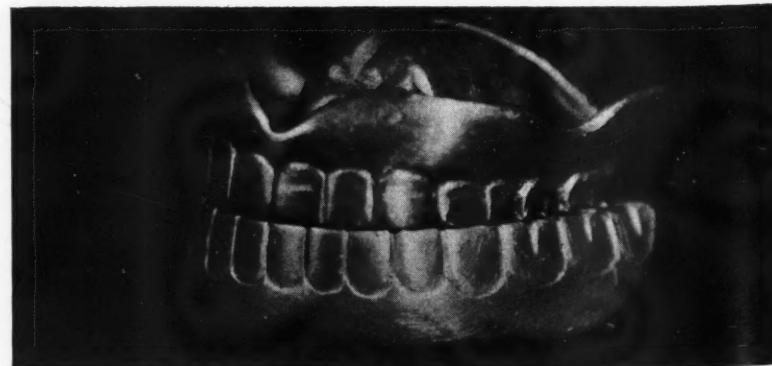
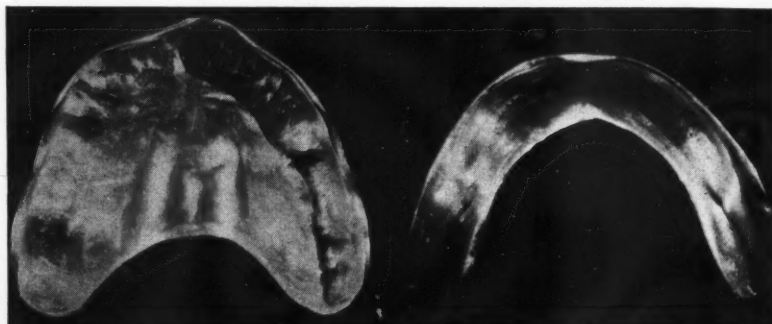


Ingenuity

Here are some pictures of dentures that are far better than those worn by George Washington. Although they cannot quite meet the precision of the modern prosthodontist's result, these self-made dentures are mighty good. I am indebted to A. J. Harris of Norfolk, Virginia for the interesting story behind these dentures:

There was a molder who had his teeth extracted and dentures constructed by his dentist. Then he was called to duty at sea in the United States Merchant Marine. There his dentures loosened and became a source of annoyance to him, so he fashioned impression trays of sheet aluminum, mixed some plaster and took his own impressions. These pictures show the casting from aluminum. The result, not only in his own estimation but in that of a dentist who

(Continued on page 238)



The Editor's Page

IN WHAT CATEGORY do we place the expression, "A tooth for every child"? Is this an old wives' tale, a dental myth, or is it an observation substantiated by scientific evidence? Clinical experience suggests that dental caries seems to be more prevalent in the mouth of the pregnant woman and that caries susceptibility does not immediately recede after parturition. Clinical observation suggests that the period of lactation is likewise a period of dental hard tissue stress and strain. The early presumption used to be that the demands of the developing fetus were such that calcium was withdrawn from the dental tissues. This misconception was based on the belief that bone and dental hard tissues were similar types of tissue.

We know that bone does act as a storage house for calcium. Whenever the body needs demand, calcium can be drawn from bone. But the dental hard tissues are biologically and physiologically different from bone. Enamel and dentine are avascular and acellular tissues. Once laid down there is no process by which enamel can be destroyed by internal absorption to permit the calcium of the enamel to be drawn into the circulatory system and carried to distant parts. To withdraw calcium from the teeth into the circulatory system to meet even the urgent needs of the developing fetus is physiologically impossible; moreover, although it is true that the calcium needs of the mother are increased by the demands of the fetus, these demands are relatively slight. On the basis of the observations by Bodansky, it is pointed out by Isaac Schour of the University of Illinois that "The full-term infant weighing 3000 Gm. contains approximately 24 Gm. of calcium. The average woman has from 2000 to 2500 Gm. of calcium, of which 97.98 per cent is within the bones and less than 1 per cent in the teeth. The total calcium need of the fetus, therefore, is 1 per cent of the mother's storehouse. Such a drain is not serious. However, for the general health of both the mother and infant, it is essential that the calcium intake of the pregnant woman be increased to a minimum of 1.5 Gm. per day."

It is seen, therefore, that with adequate nutrition the mother need lose very little of the calcium from her osseous tissues and she cannot lose any from her teeth through withdrawal by the body. What does account, then, for the apparent increase in susceptibility to dental caries during pregnancy? Schour does not believe that the incidence of caries is increased. He does say, however, that "when it does occur to any unusual degree, it can almost always be related to the poor oral hygiene associated with the sordes and acid metabolites from the nausea and vomiting and with the general lassitude of the pregnant mother."

Again, leaning on clinical experience, it appears that the women who have a great deal of morning sickness in the first trimester of pregnancy seem to have a greater tendency to tooth decay than women who do not have this unfortunate experience. This might suggest that as the result of the vomitus and sordes the hydrogen ion concentration of the saliva is shifted from the alkaline to the acid side, thus increasing the rate of caries. It is likewise common knowledge that during pregnancy women may show strange food proclivities which may be factors in the apparent increase of caries at that period.

Schour does concede that pregnancy gingivitis of a mild form is a relatively common condition. He would explain this on the basis of poor hygienic habits and perhaps to a transitory endocrine imbalance. Pregnancy gingivitis is usually amenable to treatment and is not a precursor to more serious periodontal disease.

So long as dental caries still remains something of a mystery and so long as there are so many differences of opinion regarding its causation, it will serve no good purpose to tell the pregnant woman that "a tooth for every child" is entirely a dental myth. It is far better to tell this woman that caries *may* be increased during pregnancy and that she must be particularly insistent during the period to neutralize excessive mouth acids and to practice careful oral hygiene.

Duplicating Natural Teeth in Immediate Denture Service

DAVID T. PARKINSON, D.D.S., Wichita, Kansas

DIGEST

A method of immediate denture construction is presented whereby the patient's natural teeth may be duplicated in acrylic. An exact and practical technique is outlined in ten steps.

THE INTRODUCTION of the newer acrylics into operative and prosthetic dentistry has made it possible to offer services that were hitherto difficult if not entirely impossible. One of these services has been the satisfactory duplication of the patient's natural teeth when that is desirable in denture construction. A method for such duplication is presented which is both exact and practical in any office where acrylics are used; or, it may be done in the laboratory under the dentist's supervision.

Technique

1. An accurate impression of the patient's mouth is made before the teeth are extracted and a stone model is made just as for any case of immediate denture service (Fig. 1).

2. The stone model is coated with a separating medium and a stone impression or cast made of the palatal surface and the lingual surfaces of the teeth up to the incisal edge (Fig. 2).

3. A cast is made of one half of the labial surface of the teeth, from central to cuspid with the lingual cast in place (Fig. 3).

4. With these two casts in place on the model, a cast is made of the other half of the labial surfaces (Fig. 4). It is necessary to make the labial cast in two sections, so that it can be removed from the stone model.

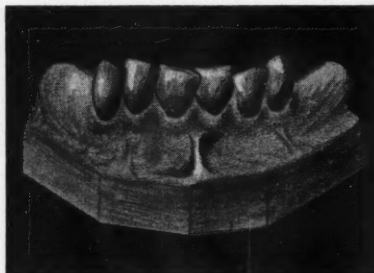


Fig. 1—Stone model before extraction.

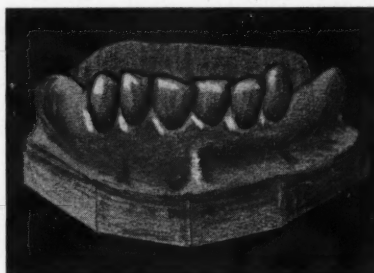


Fig. 2—Stone cast of palatal surface and lingual surfaces of teeth up to incisal edge.

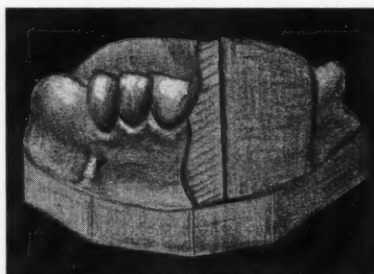


Fig. 3—Cast of one half of labial surface of teeth, from central to cuspid with lingual cast in place.

5. These three casts are then removed from the stone model and assembled (Fig. 5), thus making a mold of the teeth to be reproduced.

6. Into this mold melted white carving wax is poured, and when it is cooled, remove the stone casts, leaving the wax forms of the teeth. If the mold is painted with a solution of cocobutter in chloroform the wax will not adhere to the mold.

7. These wax forms may then be refined and corrected by carving.

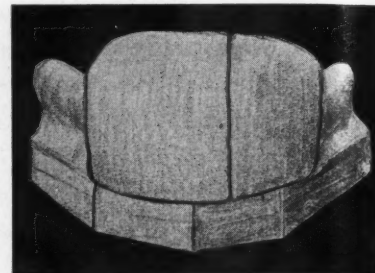


Fig. 4—Cast of other half of labial surfaces.



Fig. 5—Casts (three of them) removed from model and assembled.

8. Process in the chosen acrylic of selected shade to reproduce any individual marking, such as enamel checks, silicate restorations, erosions. This processing may be done for individual teeth or in sections of two or three teeth or the whole number at one flasking if their shape will permit.

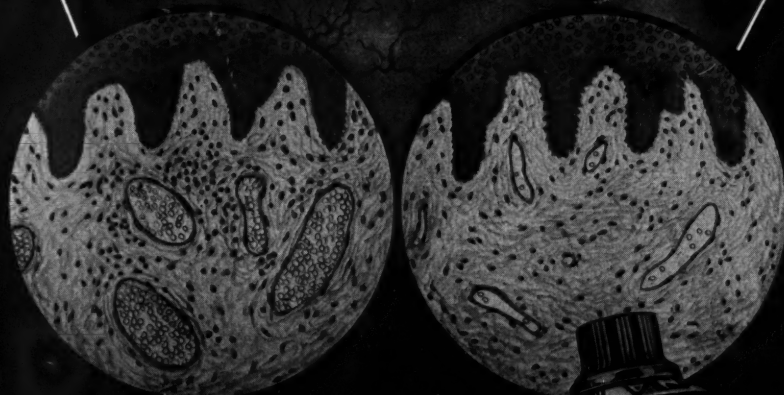
9. After the processing and finishing of the acrylic teeth have been accomplished, the lingual cast section is placed back on the stone model (from which the teeth have now been cut away and the model trimmed); the acrylic teeth are fitted into the impressions made in the lingual cast and waxed to the model. This will assemble the acrylic teeth in exactly the same relation to the maxilla as were the natural teeth.

10. The denture is now completed in the usual manner and when finished the restoration will be an exact reproduction of the patient's own teeth before they were extracted.

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Sluggishness due to
distended capillaries

Active circulation with
normal capillary function



massage

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Helps Normalize Gum Capillaries

The bracing effects of IPANA massage on gum tissues help bring about a normal number of small hairpin-shaped gingival capillaries with good distribution and tonus. Local nourishment and metabolism may proceed more normally. Firm, sturdy gums present a minimum of footholds for bacterial growth — oral resistance improves.

IPANA has long been a dentifrice of choice among the profession for cleaning and polishing teeth and massaging the gums in a gentle, refreshing way. Literature on request.

IPANA *tooth paste*

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The Sulfonamide Drugs

[Condensation of Bulletin No. 7 of the Committee on Pharmacy and Therapeutics of the University of Illinois. Bulletin manuscript prepared by Doctor F. T. Maher, Department of Pharmacognosy and Pharmacology, University of Illinois College of Pharmacy.]

The use of the sulfonamides should be confined to those bacterial diseases in which a favorable response to sulfonamide therapy has been demonstrated experimentally or by clinical research. Maximum therapeutic response is associated with the early institution of therapy adequate in size and interval of dosage, and route of administration.

Comparative Activity of Drugs

There is as yet no satisfactory explanation for the varying degrees of activity exhibited by the several drugs of this group against the various pathogens, but this varying activity presents itself as follows:

Sulfanilamide	} are active against	{ beta-hemolytic streptococci gonococci meningococci Welch bacillus
Sulfathiazole		
Sulfapyridine		
Neoprontosil		
Sulfadiazine		
Sulfapyridine	} are active against	{ pneumococcus staphylococci Friedlander's bacillus
Sulfathiazole		
Sulfadiazine		
Sulfanilamide	→ is NOT effective against	{ pneumococcus staphylococci Friedlander's bacillus
Sulfathiazole	→ is NOT recommended for meningeal infections.	
	{ because it does not pass into the spinal fluid with the facility of other sulfonamides.	
Neoprontosil	→ exerts its therapeutic effects, it is believed, by splitting <i>in vivo</i> to yield sulfanilamide.	
Sulfonamides	{ are active against are effective against are equally active in acid, neutral or alkaline urine.	{ infections of the urinary tract; Proteus vulgaris.
Sulfathiazole		
Sulfonamides	→ alone exhibits significant activity against	→ Streptococcus fecalis
Sulfonamides	→ have NOT been encouraging against	{ anaerobic streptococci streptococcus viridans typhoid paratyphoid fever tularemia tuberculosis common "cold" influenza poliomyelitis small pox syphilis

Routes of Administration

Oral administration, if possible, is preferred. Absorption is rapid and distribution is uniform after absorption throughout the body (although there are exceptions to this).

When oral therapy is not advisable or possible:

1. Saturated solutions of sulfanilamide may be given intravenously or subcutaneously.
2. Solutions of neoprontosil may be given parenterally.
3. The sodium salts or sulfapyridine, sulfathiazole and sulfadiazine may be given intravenously.
4. Rectal administration of suspensions of these drugs in oil, or of solutions of their sodium salts has been described. Sulfadiazine is apparently not well absorbed from the rectum.

Dosage Determined by Blood Levels

An insufficient dosage schedule may

- a) be incapable of coping with the infection present;
- b) result in the development of "drugfast" strains of the organism.

Clinical experience has ruled that the best guide to adequate dosage lies in a determination of the levels of drug present in the body fluids during therapy. Optimal blood levels so determined may be outlined as follows:

Sulfanilamide:	5 to 15 milligrams per hundred cubic centimeters.
Sulfapyridine:	4 to 10 milligrams per hundred cubic centimeters.
Sulfathiazole:	5 to 10 milligrams per hundred cubic centimeters.
Sulfadiazine:	5 to 10 milligrams per hundred cubic centimeters.
Sulfaguanidine:	1 to 3 milligrams per hundred cubic centimeters.

N. B. Sulfaguanidine shows poor absorption; therefore, low blood levels.

Urinary levels of 100 to 300 milligrams per 100 cubic centimeters are desirable.

Excretion

About half of the absorbed sulfonamide is conjugated, largely, if not entirely, in the liver, to form par-a-acetylaminobenzene sulfonamide derivatives. Both the free and conjugated forms of these drugs are eliminated largely by the kidneys. Small amounts are found in perspiration, in mother's milk, and in expectorated saliva. Some drug, probably the unabsorbed portion, appears in the feces.

Toxic Reactions

A history of toxic reaction to one of these drugs should indicate caution in the subsequent administration of any of the sulfonamide derivatives. The following are some of these effects:

1. Symptoms referable to the nervous system: dizziness, headache, depression, melancholia, dulled mental acuity and physical response; loss of appetite, nausea, and vomiting (particularly with sulfapyridine, less so with sulfathiazole).
2. Cyanosis.
3. Acidosis: In sulfanilamide therapy acidosis may be prevented by the simultaneous administration of sodium bicarbonate or lactate.
4. Drug fever: Predominantly a danger signal of the development of more serious toxicity. Occurs after fever incident to infection has subsided.
5. Dermatitis: Skin rashes have been common with sulfanilamide and sulfathiazole—less common with sulfapyridine. Condition is reduced by the administration of nicotinic acid.
6. Liver Injury: High-carbohydrate, low-fat diets have been recommended.
7. Acute Leukopenia with Granulocytopenia: Prompt cessation of therapy, forcing of fluids, and diets rich in vitamins, particularly vitamin C indicated if the leukocyte counts drop to 5000 or less per cubic millimeter during therapy.
8. Reactions Involving the Erythrocytes: Anemias, both

(Continued on page 253)

He gets the **STRIKES** with the ball he Knows!



WATCH a good bowler — the man who gets strikes by design, not accident. He rolls his own ball. Holes for his thumb and fingers have been drilled to fit his grip. He knows how that ball will "break", and where. No wonder the pins topple!

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frin or Novocain-Pontocaine-Cobefrin, or both, you know in advance that these solutions can be repeatedly trusted for dependable anesthesia, with welcome freedom from undesirable side-effects.

In one respect, you will find that they differ. Novocain - Pontocaine - Cobefrin extends profound operating anesthesia over a longer period. Our suggestion is, try both. Singly or together, they will dependably fulfill every demand you make of a local anesthetic.

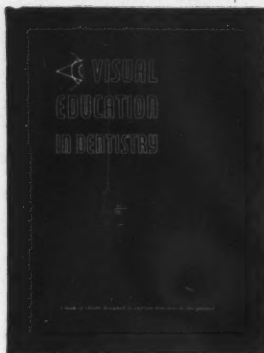
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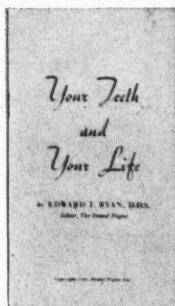
ethical . . . instructive, economical

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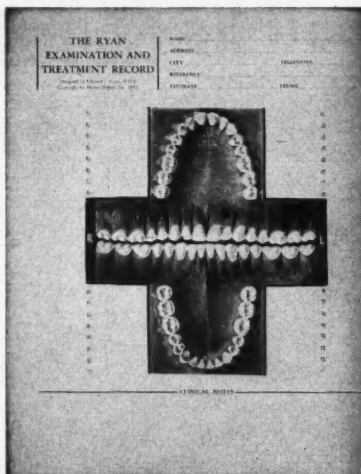


The complete edition of *Visual Education in Dentistry* comprises 30 charts, most of which are printed in full color. The charts are invaluable in your patient-education program; ideal for use at the chair; effective material for your reception room table. If you have never had a copy, or if your present copy is badly worn, you are entitled to the complete edition at the special subscriber price of \$1.00. The coupon below is for your convenience.

The new booklet, *Your Teeth and Your Life*, illustrated here, is intended primarily for patient distribution. It is written entirely in lay language.



Charts tell the essential story. Many dentists are using it (1) as a monthly statement enclosure; (2) in the reception room; (3) as an enclosure with patient recall cards, etc. Prices, 25 for \$1.00; 100, \$3.00. The coupon below is for your convenience.



The *Ryan Examination and Treatment Record Chart* is extensively used throughout the profession—also in many institutions where essential records are required. The chart is often referred to as the most practical one ever offered. Aside from offering a permanent record of cases the charts have been found to have a definite informative value in explaining conditions to patients. Price, \$1.00 per pad of 50 charts. Standard 8½ x 11 size. The coupon below is for your convenience.

20 Reasons for Dental X-Rays is a four-page pamphlet of common cases revealed only by the x-ray. It is available now because of a great demand for this material by dentists everywhere. It is a worthy addition to the other visual material referred to on this page. Prices, 100, \$6.50; 200, \$10.00. The coupon below is for your convenience.

Each of the items listed on this page is strictly ethical, and worthy of consideration for use in your patient-education program. Build now for the future by outlining a definite educational program. Carry the program out month after month. Show your patients that neglect costs more than treatment, in pain, in time, and in money. **TO HELP CONVINCE THEM, SHOW THEM.** Patient-education material is an economical means of doing this.

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Massage Features



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which prevents slipping, even
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the hand naturally
grasps for easy and
efficient tooth brush-
ing and gum massage.



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oral hygiene aid for
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certain by your recom-
mendation of either the
regular Three Row D.D.
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pact Two Row D.D. Tooth Brush.

And now, we come to the tufts,
nicely spaced to reach every
accessible tooth surface.
The bristles are highly resilient
and springy, made for long life.

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(Dept. 2)
630 Fifth Avenue
New York, N. Y.

SCIENTIFICALLY DESIGNED FOR
MODERN TOOTH BRUSHING AND GUM MASSAGE

(Continued from page 230)

subsequently examined the work, was good.

Looking at the pictures critically, the first thing that strikes us is the comparatively good maxillary design. The mandibular denture, although not extended posteriorly in accordance with newer techniques, is not entirely lacking in appreciation of the anatomy of the mandible. Even those who fear occlusal trauma most would have to admit that these cusplless dentures present no traumatic hazards. Although the occlusal tooth design is unorthodox and more geometric than anatomic, it is certainly no more weird than some of the suggestions for tooth design occasionally offered by prosthodontists.

To be sure, we do not approve of having people make their own dental restorations, but in an emergency case, such as this, the ingenuity of the layman is worthy of comment. This chap who had to fall back on his own resourcefulness showed mechanical skill of a high degree to say nothing of tissue tolerance and fortitude. He must certainly have presented a ghastly smile, but apparently he needed no one to tell him of the esthetic terror his ship-made all-metal dentures provoked. Remember he was a sailor and he came eventually to port, and when he did, he sought the attention of a dentist.—

Washington Flash . . . !

The Office of Procurement and Assignment Service announces the following over the signature of the Executive Officer, Lt. Col. Sam F. Seeley:

"THE OFFICE OF THE SURGEON GENERAL HAS ANNOUNCED THAT VACANCIES IN THE DENTAL CORPS ARE FOR THE PRESENT RESERVED FOR ONLY THOSE DENTISTS WHO ARE IN CLASS 1A OR WHO HAVE BEEN INDUCTED. I AM AUTHORIZED TODAY TO ANNOUNCE THAT ONE THOUSAND OFFICERS MAY EXPECT EARLY COMMISSION AND THAT THOSE IN CLASS 1A SHOULD APPLY IMMEDIATELY TO THE OFFICE OF THE SURGEON GENERAL FOR APPLICATION FORMS STATING AGE, THAT THEY ARE IN CLASS 1A, NAME, ADDRESS, AND SCHOOL OF GRADUATION. ALL CASES WILL BE CLEARED THROUGH PROCUREMENT AND ASSIGNMENT SERVICE."

But all dentists, regardless of age or physical condition should fill out and return immediately, if they have not already done so, the Procurement and Assignment Enrollment Form which they have recently received.

Through a clerical error in Washington, dentists of several states have re-

ceived medical questionnaires rather than those intended for dentists. Those dentists who have received the wrong enrollment forms should write immediately to Doctor Gerald D. Timmons, Secretary, Dental Preparedness Committee, American Dental Association, 212 East Superior Street, Chicago. They will be sent the dental form at once. Because post cards frequently come through the mail in an illegible condition, it is suggested that dentists

write their requests for the correct enrollment blanks in a letter.

Auxiliary Medical Officers . . .

It is good to see that the Medical Division of the Office of Civilian Defense has finally awakened to the need that dentists might fill as auxiliary medical officers. Out in Monterey, California, dentists are placed in charge of all First Aid Posts whereas physicians are assigned to the hospital services.

Throughout the country there are

Dentistry

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AN IMPORTANT MESSAGE TO EVERY DENTIST

During the entire month of May The S. S. White Dental Mfg. Co. and other manufacturers cooperating with "Gold and Platinum Metals in Dentistry" will contribute a definite portion of their sales of precious metals toward the purchase of a fully equipped mobile dental clinic which will be presented to our Government.

Help swell the fund - MAKE YOU LA

many earnest groups of dentists taking First Aid courses. They find that they are a little rusty on their anatomy and physiology but their clinical judgment and experience make up for some of these inadequacies. Dentists are at least accustomed to seeing people bleeding, ill at ease, and in various stages of pain and collapse. They are used to operating under emergency conditions. One great danger that will arise among many of the conscientious laymen first

aiders will be their inability to translate their theoretical knowledge into practical form when the need arises.

In the interior of the country there are dental groups that have not yet become excited about the need for courses in first aid. There are really no invulnerable or exempt areas in the country. The treacherous enemies that we are facing have the habit of striking boldly and in unexpected places. Theoretically we expect the first attack to come

along one of the seaboards. But we don't have to have a bombing or an invasion direct from Germany or from Japan. They have other means of jeopardizing us. There are submarines that can carry airplanes. The Germans have disguised freighters that can catapult airplanes. Our greatest danger comes from internal attack. It would not be hard, for example, to steal a civilian plane from any airport in the United States, load it up with incendiary bombs which are not of secret construction and which contain materials that are available to saboteurs. To spread poison gas, moreover, it is not necessary to have spraying devices or gas bombs. Liquid war gases can be corked up in jugs and dropped along city streets from speeding cars. Sabotage by arson is a constant threat. It would be only too easy to burn our grain fields and our forests, to say nothing about attacking our factories that are turning out war munitions and supplies. Whatever part of the country a dentist is in, therefore, is a location in which he should take active part in civilian defense.

Looking Backward . . .

Walking down the streets these days, one has the feeling of returning to the early days of the Century. It has been a long while since we have seen bicycle racks in front of stores. It probably won't be long before we see a return of the hitching post and the horse troughs lined with green slime in summer. Report has it that a taxi company of Boston has already announced the service of one hundred horse-and-buggies, and some of the cobbled horse lanes of Philadelphia with the old hitching posts intact, which for years have been pointed out to tourists as reminders of the past, will again come into their own. With looking backward signs there will be returning sounds and smells: the sound of clattering hoofs on hushed Sunday streets, the tinkle of the spangles on the brewers' strong horses; the nostalgic smell of the livery stable and wet, hot harness.

We have been told that sugar rationing may be a blessing; that our teeth will be better, our complexions clearer, and our internal functions smoother. A good many of the people who have re-




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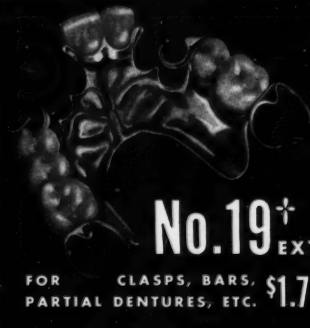
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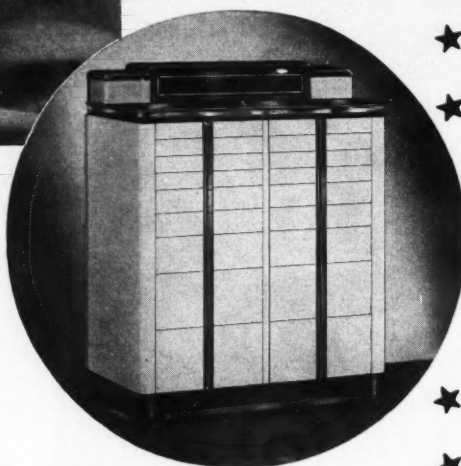
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DDS

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turned to the bicycle have already dropped a few inches of waistline. They have a color in their cheeks that they did not have in the soft days of unrestricted auto traffic.

And the Victory Garden yields experiences entirely apart from earthy vegetables: the warm sun on a bare back, the blisters from the spade and the rake, the smell of early morning—these are nutritional in another sense.

A Portrait of John Dentist . . .

One of the clearest depictions of the average dentist has come from the pen of John W. Cooke of Boston. Speaking before the First District Dental Society of the Southern California State Dental Association, John Cooke portrayed this picture:

"Let us discuss the average dentist for a few minutes, and we'll call him John Dentist. There are several reasons why he went into dentistry in the first place, and not all of them are good ones. Family influence or family precedence caused about half of the career selections in dentistry. Another twenty-five per cent is probably accounted for on the basis of a second choice to medicine. Within the final twenty-five per cent of the causes are found a desire to excel in digital skills, impelled sometimes, no doubt, by poor examples of personal dentistry earlier in life. There are, of course, many other causes. The desire for the dignity of a professional status, the willingness to enter a relatively uncrowded field, the relatively modest, but still relatively sure rewards.

"John Dentist acquires a following, commonly termed a practice, and may attain a respected if not a prominent status in his community. He is an individualist, indeed, what dentist is not, and he is likely to express himself freely, sometimes incorrectly as to the destiny of dentistry, and as to the relative appreciation in which he is held by his fellow-men. He is a member of organized dentistry, largely because he has to be, and conforms somewhat blindly to the legal regulations affecting his professional life, because he must, to live. Recalling conversations in the past years, he understands vaguely that dentistry somehow has missed the boat, that fees are not what they used to be, and that there is a wave of pressure,

The HOME GUARD



You are naturally desirous of having your patients supplement your professional care with proper home care. And patients, too, want to protect their teeth and retain the attractiveness of their smile.

Why not suggest Squibb Dental Cream and the Squibb Angle Toothbrush? Because of its unique design, the Squibb Angle Toothbrush does a grand job of getting at hard-to-reach surfaces of the teeth . . . while Squibb Dental Cream brings a cool, clean, refreshed feeling that's really enjoyable. Together they make an excellent "home guard" for your patients' teeth. Why not draft them for this service?

Here are several Squibb Dental Products that are recognized for high, dependable quality. Give them a place in your practice.

Squibb Dental Cream—A safe, effective dentifrice made from Squibb Milk of Magnesia—a fine antacid. Free from any ingredient which might be harmful to the teeth or gums.

Squibb Tooth Powder—Provides the same scientific advantages as Squibb Dental Cream. Safe and pleasant to use. Contains magnesium hydrate—an antacid.

Squibb Angle Toothbrush—Has a small brush head, mounted on a slim metal shank bent at an angle like your mouth mirror. Designed to

make it easier to reach less-accessible areas of the teeth. Has high quality, long-lasting Synton (synthetic) bristles.

Squibb Oral Perborate—A free-flowing, pleasantly flavored preparation of sodium perborate. May be used on a toothbrush or in solution as a mouth wash when indicated.

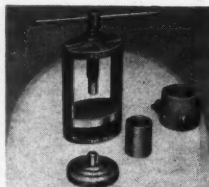
Squibb Antiseptic Solution—An effective and useful agent in oral hygiene. May be used as a gargle or spray in helping to relieve mouth and throat irritations.

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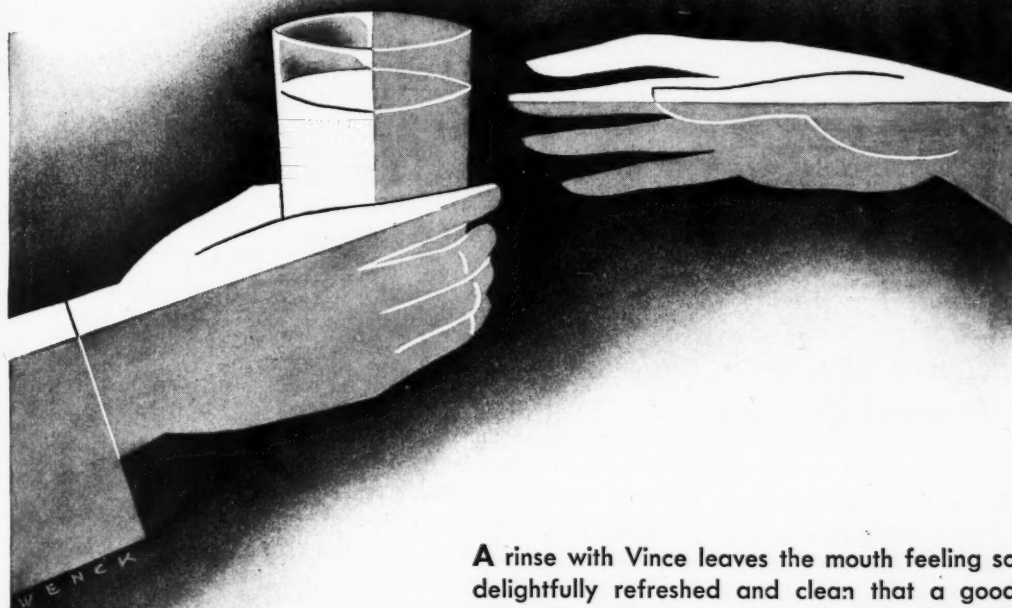
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vaguely communist in character, which is going to regiment all dentists in some form of socialized, panel, compulsory health insurance form: John Dentist is pretty sure that something ought to be done about it, because collectivism strikes terror to his heart, inasmuch as he has always been an individualist.

"John Dentist doesn't, which would appear logical, meet collectivism with collectivism, but he becomes more of an individual than ever, and may start to build a few personal fences. His supply house salesman may be able to sell him a course in practice management, and he may picture himself as a kind of dental Dale Carnegie. Or, he may select a type of practice activity for superficial study, which may do him a lot of good, in spite of the fact that it costs a lot of money, and probably involves some very complicated and highly visible equipment. We have all done it, and the symptoms are easily recognized. Now, as related to the whole field in dentistry, John has become rather specialized these past twenty years, possibly too much specialized. Cases requiring orthodontic treatment are referred out of his office, and he may, with equal propriety, place great confidence in the specialist to whom he refers his cases for exodontia and oral surgery. This is all natural enough, but John doesn't stop here. He can't exist without a dental technician, and, lacking the ability or the facilities to employ one himself, he receives good prosthetic service from a commercial laboratory, but he is likely to owe to this institution more than he realizes, in other words, his sense of independence. He turns his back on acquiring clinical competence in orthodontics or in surgery, and is likely to be discontented because he feels that the fees of these specialists are too high. But, in the same breath, he accepts without complaint the circumstance that his now greatest source of profit and income is dependent on an influence outside of himself, which he may not be able to control.

"It occurs to me that John Dentist is rather short sighted and less intelligent than his background and professional training might indicate. It is wise, however, to discuss this matter in a closed circle of professional colleagues.

"RINSE, PLEASE"



A rinse with Vince leaves the mouth feeling so delightfully refreshed and clean that a good many dentists now use it regularly at the chair ...after extractions, cleaning, scaling, drilling and other procedures where debris must be removed.

Vince is a many-sided oxygen antiseptic and detergent. As a therapeutic aid for office use, especially in the treatment of "trench mouth," it has found wide professional acceptance. As a mouthwash, gargle or dentifrice for home use under professional direction, Vince has qualified through years of service.

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With the aid of McKesson nitrous oxide analgesia pain incident to routine procedures is eliminated. Fear and nervous tension are dissipated. Treatments are completed in less time, and with less strain upon the dentist's patience and energy.

McKesson nitrous oxide equipment is a practical, vital aid in making dental treatment easier and more inviting for the child patient; and in promoting the loyalty and regularity of adult patients: The coupon on page 257 will bring you complete information.

McKesson Appliance Co.
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and not to make the mistake of washing dirty linen in public. John Dentist's error is a natural one. His greatest source of profit, when there is a greatest source of profit, arises from the mutilated mouth, where a lot of dentistry, or a large visible piece of dentistry impresses itself on the patient's consciousness as a reason for a large fee. Much of the psychology of the conduct of dental practice is directed toward reconstruction, and not toward maintenance, and John Dentist falls unconsciously into the trap, placing too many of his professional eggs in one economic basket. Review, if you please, the features of dental meetings in which we have all had great interest, and recall the so-called 'big' cases which have been demonstrated for our instruction, and, indeed, which we have sometimes been party to. We have neglected prevention and early recognition, because it was not profitable, because, along with these essential, undramatic factors in dentistry there was dispensed no package merchandise which our public might admire and probably purchase.

"We, and John Dentist, have made other errors. I even hesitate to mention this, because it is dynamite at any dental meeting. It is we, who have attempted to make dentistry a health service, and rightly so, but we have been unable to create the fees by which all of the public could purchase the kind of dentistry we are talking about, because that kind of dentistry is a luxury service, and not a health service, of itself. And, we are still resisting the inevitable, the momentum of a movement started by ourselves without the means or the self-sacrifice to see it through to completion. A little of the dentistry done today is good dentistry. A small part of that original little part is and will remain superlative dentistry, the highest, and, incidentally, the most expensive form of dental art. What is needed is not to increase the numbers in that class of superlative technicians, but to raise the level of dental practice from the bottom up, so that the average will improve. The best there is, today, is good enough, probably too good, and the needs of society can be adequately met on a professional level technically less exacting than our now highest level.

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Doctor Russell Panzica has been ill, and unable to practice dentistry for a long time. A limp right leg and a numb left hand—think what that would mean to you.

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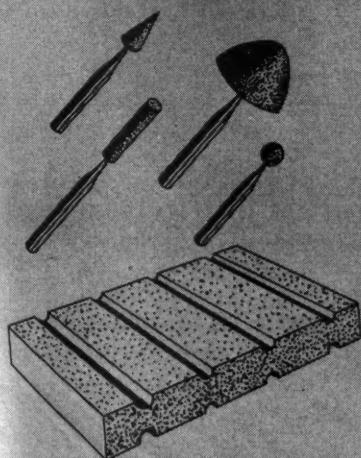
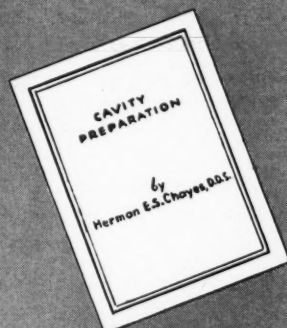
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In your ORAL HYGIENE this month



Making Children's Dentistry Pay

You'll find that your May ORAL HYGIENE sparkles with articles and departments of lively interest to you.

A businesslike attitude and careful analysis of costs are essential to the successful practice of children's dentistry, according to Doctor Stanley C. Brown. In May ORAL HYGIENE, in "Making Children's Dentistry Pay," Doctor Brown outlines the plan which he has pursued successfully.

Doctor Fred D. Miller of Altoona, Pennsylvania, a distinguished member of the profession, contributes a highly unusual article, "Face First?" which tells how dentists can aid in the prevention of facial injuries that impede the war effort and lower civilian morale.

"Teeth Mean Nothing in War," by Doctor Walter H. Jacobs, is bound to stimulate discussion. "Nowhere in all the battles of history, have teeth

entered into the final result," he says.

If you're puzzled and annoyed by shortages of dental supplies, read "Highlights on the Present Dental Supply Situation," by John J. Downes, who wrote it after a detailed investigation of conditions.

"Just a living is all I get out of it." That's what the average dentist says about his profession," is the provocative first paragraph of "Prevention—The Key to Financial Security." You'll profit by reading the rest of this article by Doctor Myron M. Lieb and David Friend.

And also, in this month's ORAL HYGIENE, these departments: Ask ORAL HYGIENE, Technique of the Month, This is YOUR Business, Military and Defense News, Editorial Comment, Dentists in the News, Laffodontia, and The Publisher's Corner.

In your May
Oral Hygiene

"John Dentist will, I hope, be willing to understand the significance of these next few years to his professional status. He has agreed that dental service should be available to everyone, but on his terms, and on his price. The promotion of universal dental service is now almost out of the hands of the dental profession, partly because John Dentist was trained as an individual, and has practiced as an individual, and has only partly embraced the strength of a union of persons with a common training and with a common interest. It is John's duty now, if he will see it, to recognize the all too clear portent of the creation of a class of technicians, which must work for society in the interests of dental service and which should be controlled and governed by John Dentist and by others like him. This implies an education of practicing dentists not heretofore envisioned by organization leaders, and it signifies a participation by John Dentist, at increased expense to him, no doubt, in the broad field of dentistry's manifest public relations responsibility. Lacking this mass movement, this broader education, because on its swelling tide will float all influences, any specialized advances in the education of dentists will encounter difficulties which cannot be surmounted.

"... John Dentist is right in the line of certain forces which can hurt him much, and current changes in dental education are by no means the most important of these forces. John Dentist needs to be re-awakened to a true sense of his social and professional responsibilities, to a feeling of sublimation similar to what he may have felt on the day he was graduated from dental school. And, with this re-awakening, may come a sense of enlightening union with today's education of tomorrow's dentists, to which John Dentist can contribute much, and from which he may receive more. Without this awakening, a collective spirit of participation in problems of public health, John Dentist, will, and not for the first time, watch the procession pass by him . . ."—E. J. R.



1917

A WAR AGO TODAY

... a year that heard the heavy cadence of marching feet ... Liberty Bonds ... And Liberty Motors ... "The Yanks Are Coming!" Troop-ships aweigh ... A nation no longer "too proud to fight".

Millions of people were at home, working, creating the needful things of life ... guarding health, hygiene, well-being, beauty, for a better future. These things must endure. War or no war, America considers public health today as then, of equal importance to our outer defenses. Men who protect our inmost health are told by the nation's leaders to remain at their posts, to continue their service in healing and fortifying ...

It was in 1917 that a pioneering dentist named Dr. Simon Myerson in his Cambridge office began to experiment in the making of *better* artificial teeth. What chance had he, a mere dentist, of success against powerful, well-established manufacturers? Had not they already made every possible improvement? The prospects would have discouraged most men.

Many a research worker has been faced with the same forbidding prospect. Yet today we have the marvels of aircraft, of electricity, of healing, probing X-Rays, of unnumbered triumphs of science, medicine and dentistry. It is in the field of prosthetic dentistry that Dr. Myerson has made many important contributions, in the fruitful years since 1917.

A black and white photograph showing the silhouettes of several soldiers in profile, marching from left to right. They are wearing hats and carrying rifles with bayonets fixed to the barrels. The background is a light, hazy sky.

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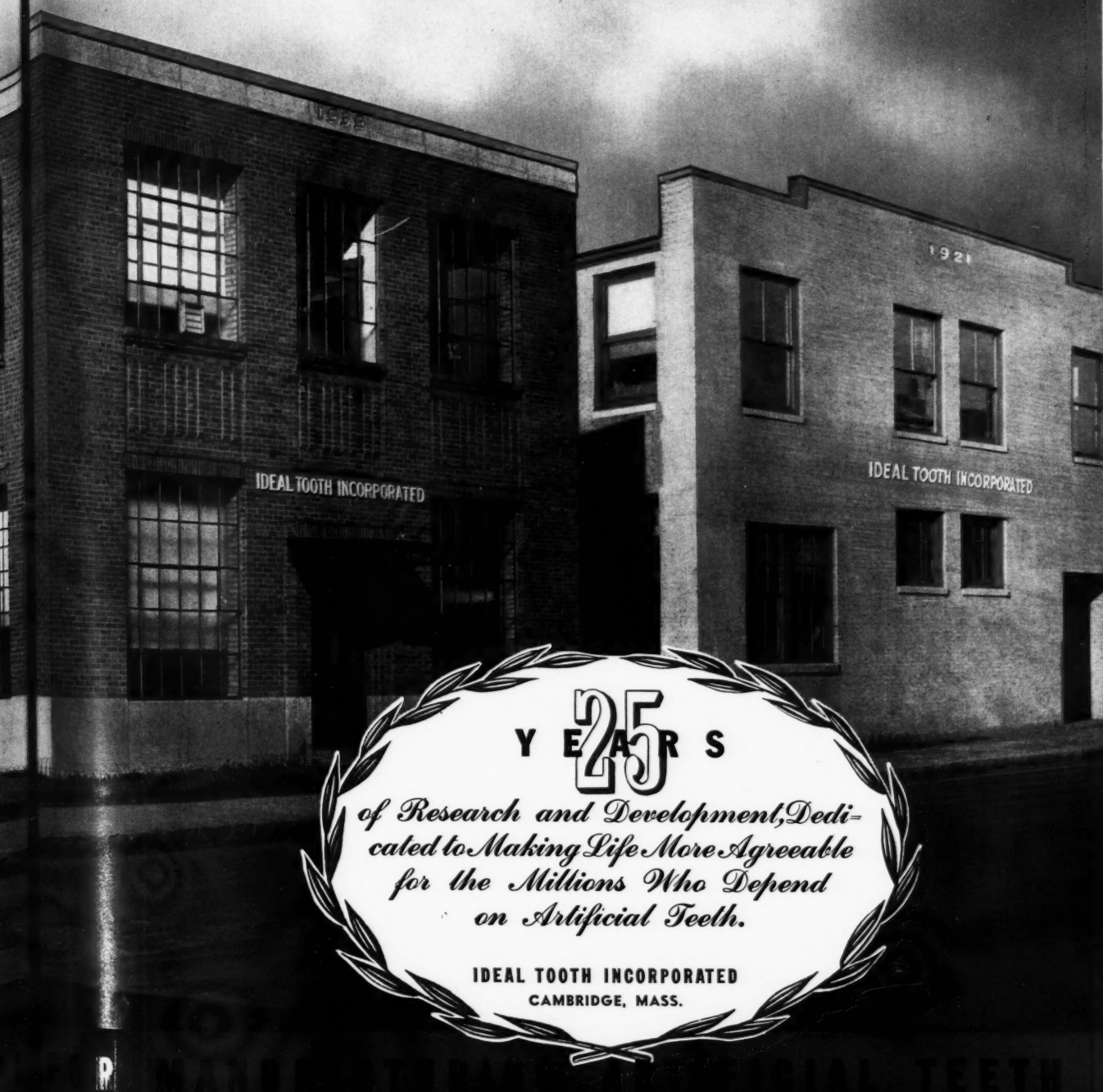


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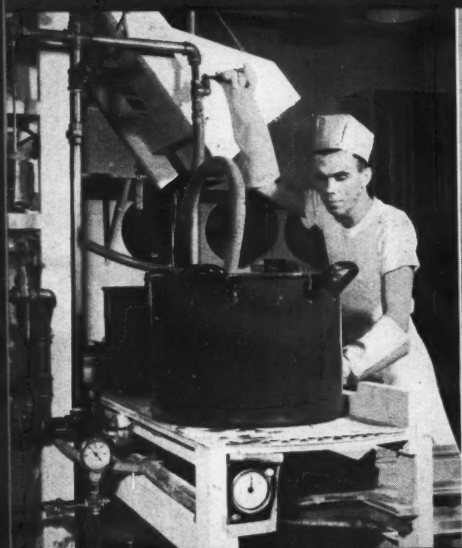
The world is again in a struggle, storming the forces of aggression in order to return to brotherhood and concord. The "Ideal" laboratories take their place with the scientific and humanitarian groups that must keep working, searching, striving for improvements during the present strife and for the better days of peace that will come again.



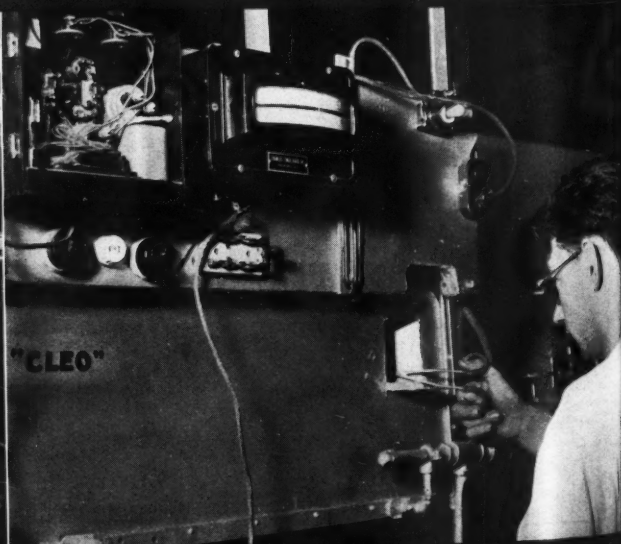
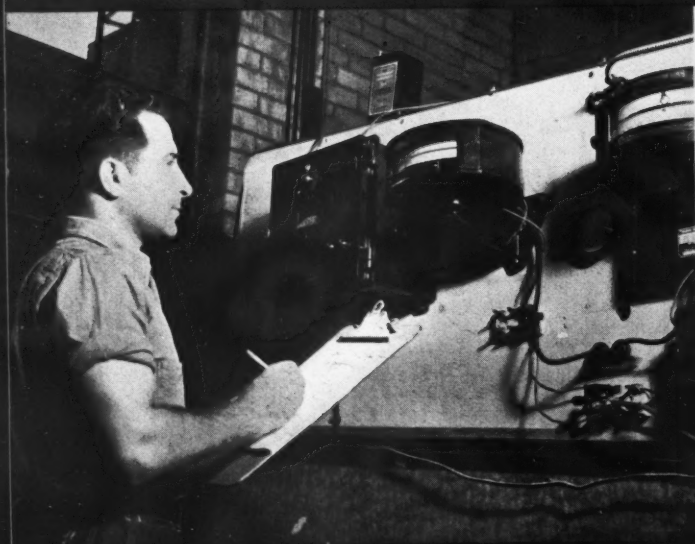
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Dates

Missouri State Dental Association,
annual meeting, St. Louis, May 24-27.

Utah State Dental Association, fifty-
second annual meeting, Newhouse Ho-
tel, Salt Lake City, June 4-6.

The Northeastern Dental Society,
twenty-eighth annual meeting, New
Ocean House, Swampscott, Massachu-
setts, June 7-10.

Colorado State Dental Association,
annual meeting, Colorado Springs,
June 18-20.

New Hampshire Dental Association,
annual meeting, New London, June 21-
23.

Oregon State Dental Association,
annual meeting, Portland, June 25-27.

American Full Denture Society,
fourteenth annual meeting, Parker
House, August 21-23.

American Dental Association, eighty-
fourth annual meeting, Statler Hotel,
Boston, Massachusetts, August 24-28.

American Dental Hygienists' Asso-
ciation, nineteenth annual meeting,
Sheraton Hotel, Boston, August 24-28.

American Dental Assistants' Asso-
ciation, eighteenth annual meeting,
Parker House, Boston, August 25-28.

Ohio State Dental Association, an-
nual meeting, Cincinnati, November
9-11.

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New Mexico State Board of Dental Examiners, regular meeting, Santa Fe, June 15-18. For information write to Doctor J. J. Clarke, Artesia.

Maine State Board of Dental Examiners, regular meeting, State House, Augusta, June 22-24. For information write to Doctor C. W. Maxfield, 31 Central Street, Bangor.

New Jersey State Board of Dental Examiners, regular meeting, commencing June 29 and continuing for five days thereafter. For information write to Doctor W. A. Wilson, 150 East State Street, Trenton.

North Dakota State Board of Dental Examiners, regular meeting, Gardner Hotel, Fargo, July 13-16. For information write to Doctor L. I. Gilbert, 401 Black Building, Fargo.

(Continued from page 234)
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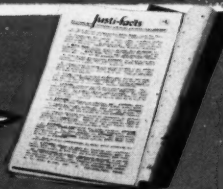
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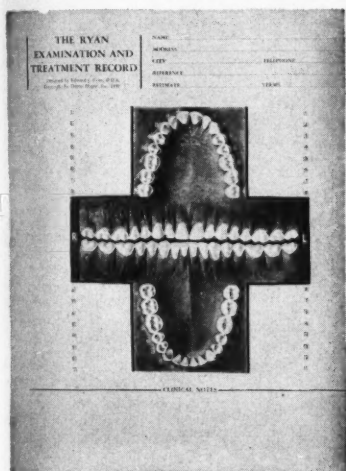
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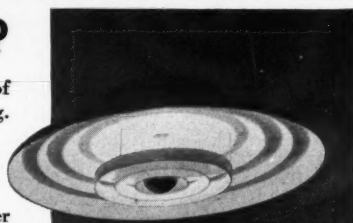
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